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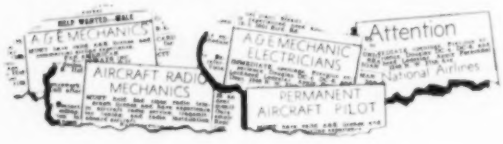

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R. R. "ROCKY" HALL, Denver, Colo., President of Western Auto Transports, Inc., moves 2500 new cars a month from Detroit to Pacific states dealers; says he uses his Cessna 190 to visit company terminals from Detroit to Los Angeles, call on dealers and manufacturers, vacation in Mexico. Rocky likes his 190's range, often flies from Denver to Joliet, Ill., nonstop. Weather is no problem. Hall says his Cessna is "the best plane I've ever owned"—and he's owned 7, including one multi-engine ship.

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CARL A. LECHNER, Chicago, Illinois, Midwest representative for 5 firms that sell supplies to paint producers, reports that he calls on prospects, attends conventions, assists Minneapolis salesmen in sales promotion, makes New York meetings twice a year, and vacations in Florida . . . all in his Cessna 195! Lechner likes his Cessna's speed, beats airline time by avoiding frequent stops. Cessna roominess is important to him, too. He's 6 feet, 5 inches tall! "With my business spread out the way it is, and a family of 4 who like vacations, I wouldn't be without my Cessna," Lechner says. "It's tops!"

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FLYING'S FAMILY

A letter from FLYING'S editor to Ralph Olson (see "God and Olson at the Creek", p. 22) elicited the above picture and the following reply from Ralph, South Dakota:

"I never did have my picture taken with my 1946 *Champ*. In the spring of 1950 I was hunting coyote dens and took off too close to a three wire fence and didn't quite get over it. One wire caught under the tail spring and I got quite a way in the air before it brought me down so the little *Champ* was just about demolished.

"I traded it in on a new 1950. Yesterday I had some pictures taken with it and am sending you the roll of films. You could get them developed a lot sooner than I. If they are any good, keep the ones you want and send me the others. I don't know what the others are as the camera belongs to the hired man and he isn't home.

"I hung a bob cat we just shot on the wing. My oldest boy is shown with the sheep dog. The airplanes have nearly put the coyotes out of existence here but we get a bob cat now and then. The coyotes used to get enough sheep each year to make a good payment on an airplane. It's surely nice to be rid of them.

"Am sending films air mail hoping you get them in time. I am about the only one who can mail a letter. The mailman hasn't been around for three weeks on account of the deep snow so I have to fly the mail when I can find time from shoveling snow and pitching hay.

. . . . "Three days later and I haven't mailed this yet. There's been a storm here since I wrote. Hope I can mail this tomorrow. As soon as the weather permits, am getting out and try to get a bulldozer in to plow out what little hay I have left.

Sincerely yours,
Ralph Olson"

THE COVER. Avro 707B Delta Wing Fighter. In next month's FLYING, William Green, British aviation authority, will survey the entire Delta Wing picture. Watch for it!

FLYING

Reg. U. S. Pat. Off.

JUNE, 1952 **VOLUME 50, NUMBER 6**

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FLYING
VOLUME 50, NO. 6
JUNE, 1952

AN EDITORIAL

Has Patriotism Lost Its Punch?

There is one all-compelling reason for the enlistment of a young American in the flying forces of the United States . . . his sense of duty.

Why then is the appeal to duty neglected in the recruiting of our youth to the air defense of the land? Have we become so cynical of our young men and women that we are afraid to talk to them about the eternal values of life? Has the poison of self-seeking so atrophied our patriotism that we think a concept of national duty to be passé? Or have we come to feel that the old virtues are dead and that it is now every man for himself . . . in short, that the yardstick is: "What's in it for me?"

In the face of national crisis—and we are daily assured by Washington that a national crisis exists—it is a little disconcerting to read the recruiting copy. In general it presents all the challenge of a cream puff . . . opportunity for foreign travel . . . free education . . . pretty uniforms . . . good pay . . . learn a trade at government expense . . . free, free, free, ad nauseum.

Only the best of our youths are mentally and physically equipped to handle modern weapons of the air. Being the best, they have many opportunities for career and for temporary service. Do we think to persuade such young people to take up the cudgels of national defense with mere self-betterment appeals?

If so I submit that we under-rate both their intelligence and their character. They can see that the job of handling a jet fighter is one for a man with hair on his chest. Nobody is going to wheedle such a youngster into the cockpit of a strategic bomber with a fairy tale about opportunity for foreign travel. And let it be said forthrightly that joy in a good-looking uniform is pretty tinhorn glamor unless the fellow inside the uniform knows he represents everything for which it stands.

There are high compensations for an airman, once he has responded to the Country's need from a sense of duty, but these are not the compensations around which recruiting appeal is centered. Mostly the real compensations lie in the intangibles . . . things which cannot be stolen or bought or traded in terms of personal advantage.

They comprise such things as friendships made under conditions which guarantee that they will last forever. They are formed of a knowledge of one's own true self, acquired under pressure. They are such realizations as a sense of teamwork, the meaning of discipline, the conquest of fear.

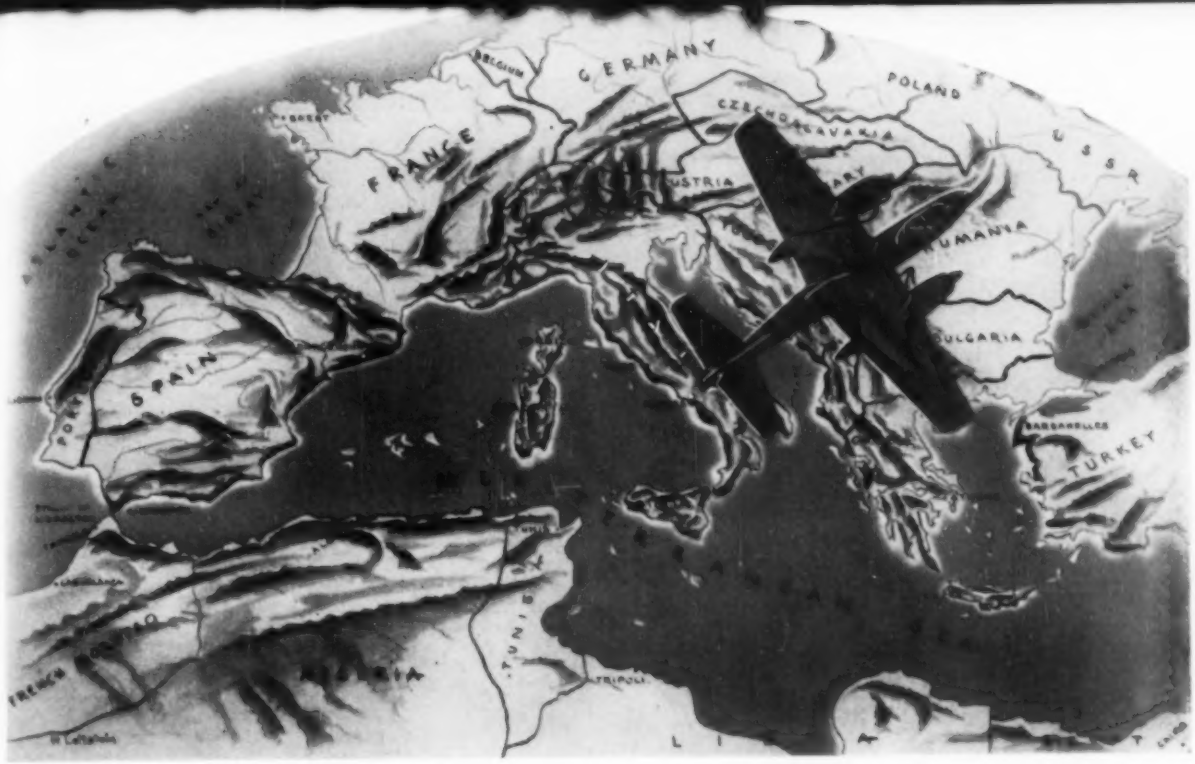
I believe it to be accurate that the American military airman as a whole would call these intangible values his most cherished compensation for the service he has offered and rendered. It is significant that the leaders of American airpower—men such as Spaatz, Eaker, Kenny, Spruance, Towers, Doolittle, to name only a few—have the devotion of their fellows as much for their spiritual qualities as for their operational deeds.

It is certain that the nation did not acquire its great airmen of the past by any appeal to pure self-seeking and self-interest. It is certain that the young officers and men who remained in the Air Force and in Naval Air after the late war did not remain to wrestle with jet fighters and strategic bombers and global transports because they wanted glamor.

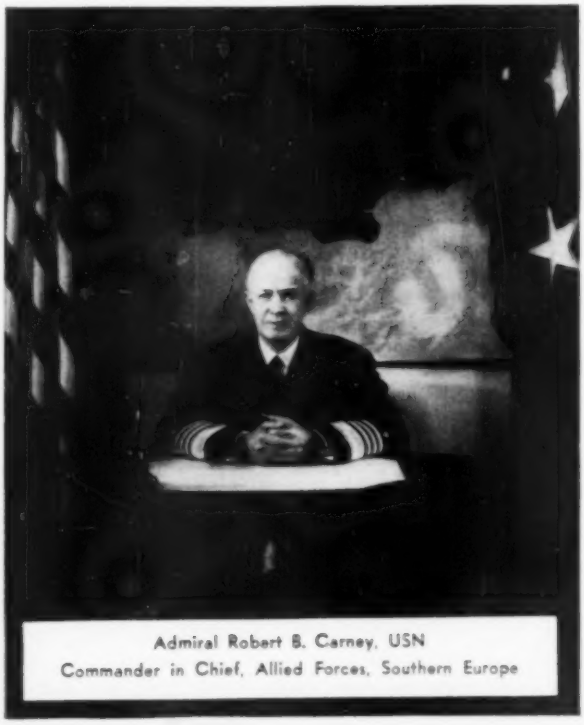
It is equally certain that we will develop no Aces for tomorrow by an appeal less than that fundamental one which challenges youth to danger and duty in an unselfish cause.

Gill Robb Wilson

Gill Robb Wilson
Editor & Publisher



Key to Destiny



Admiral Robert B. Carney, USN
Commander in Chief, Allied Forces, Southern Europe

By GILL ROBB WILSON

Editor of FLYING Magazine

MILITARY HISTORIANS, from Herodotus to Churchill, have never been able to trace the course of world history without reference to the Mediterranean Basin.

This fact focuses attention today on the southern flank of the North Atlantic Treaty Organization, where Admiral Robert B. Carney, USN, commands Allied Forces, Southern Europe.

This command was established in June, 1951, by General Eisenhower, who designated the forces to be allotted. At present these forces include Italian land and air units, French and Italian naval units, and the United States Sixth Fleet.

Of total forces under Carney, the Sixth Fleet, with its character as a fast carrier task force able to hurl atomic air strikes far inland, is the Sunday punch.

The area covered by Allied Forces, Southern Europe—Greece and Turkey being admitted to NATO but their position in command structure not yet determined—includes the Mediterranean eastward from Gibraltar to a line extending south-west from Cape Matapan, Greece,

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Editor & Publisher

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Admiral Robert B. Carney, USN
Commander in Chief, Allied Forces, Southern Europe

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Banshees are in take-off position on the flight deck of the *Tarawa* as one jet is launched from the port catapult.

Admiral Robert B. Carney, USN, is a four-star officer holding down three top jobs. He is at once Commander in Chief, Allied Forces, Southern Europe; Commander in Chief, U.S. Naval Forces, Eastern Atlantic and Mediterranean, and Commander, Allied Naval Forces, Southern Europe. His headquarters range from London to Naples and out to the deck of a carrier in mid-Mediterranean. He is the only U.S. Naval officer in a major command over land, naval and air forces functioning as a fighting team. A youthful 57, Admiral Carney carries out his multiple assignments with decisive vigor, and with wisdom gained in nearly 40 years of naval service.

Although a non-flyer, "Mick" Carney, as he is known to his friends in and out of service, is one of the most air-minded of the admirals. In World War II he coordinated airpower with ground and sea forces as Chief of Staff to Admiral William F. Halsey, Jr., in the South and Central Pacific. During the recent "Grand Slam" exercise in the Mediterranean, he was in the thick of the aerial maneuvers aboard a U.S. Navy *Neptune*.

Admiral Carney, whose father was an officer in the Navy, carries the "unification" idea home with him, too. His son, a Marine Corps major, is married to the daughter of General Sutherland, U.S. Army, who was General MacArthur's wartime Chief of Staff. His daughter is married to the naval-officer son of the late Vice Admiral Joseph K. Taussig.

to Africa. It includes the waters touching on Spain, South France, and coastal regions of North Africa.

The strategically significant land area in Carney's command is Italy. Northward she juts far up toward the heart of Europe and southward reaches deep into the Mediterranean toward Africa. Should an aggressor make a swift advance through central Europe, Allied armies striking from northern Italy could cut in behind to sever lines of communication. Also a strong defensive force in north Italy could prevent breakthrough eastward from the regions of Austria and Yugoslavia.

To the south Italy and Sicily dominate the sea lanes to Africa and the highly important Near East. Loss of Italy would threaten the marine lanes east and west and thus complicate the problems of the Sixth Fleet.

Thus it is that integration of Carney's land, sea, and air forces, and their over-all coordination with NATO in central and northern Europe, is imperative.

Fortunately for the free world, strategically located Italy has the greatest unused potential for assurance of peace of any country in Europe. Her industrial capability is enormous, her extra manpower resources are vast, and she has signified her inflexible intent to play her part in European defense to the limit of her ability. Until recently the terms of the Peace Treaty tied her hands but she is now free to play a full part for her own and her allies' freedom.

Orders to build defense materials in Italy have been announced under the U.S. offshore procurement program but, at this writing, such orders earmarked for Italy do not take advantage of her available industrial potential. Additional to this is the fact that U.S. military aid is lag-

A *Skyraider* takes off from the flight deck of the *USS TARAWA*, while a helicopter hovers on watch

ging far behind schedule and especially crippling airpower schedules of CINCSOUTH. Direct effect is to retard the Italian Air Force upon which Carney must rely for tactical army support.

Southern Europe's NATO army, under command of Lt. Gen. Maurizio L. De Castiglioni, includes most of the Italian ground forces and has made marked progress in organization and training. Carney disagrees violently with the idea that Italians do not make good fighters. Italians will fight for anything in which they staunchly believe and this is the secret for rebuilding their armed forces.

The problem is to educate the populace and give them an organization in which they have justifiable faith. It is true that morale was at a low ebb following the late war, but whose morale would have been any better under the tragic combination of circumstances which existed? The point is that Italian morale is now high under the idealism of NATO and the practical leadership of its commanders.

On the sea, Allied naval sea and air forces have been welded into a potentially powerful fighting arm. Despite political failure to establish a single over-all Mediterranean naval command, there has been admirable cooperation.

Frequent training exercises inclusive of British, French, Italian and American naval forces have become routine. Recently a joint exercise of Mediterranean units, plus a large part of the British home fleet, provided the largest example of sea maneuvers held since World War II.

"Grand Slam," as the exercise was called, gave opportunity for Italian Admirals to command British, French and American units; for French (*Continued on page* 62)

En route to Mediterranean, *Tarawa* runs through rough seas.

Here the *Tarawa* is underway in Mediterranean's calm waters.

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The northern boundary of the Venturi Horn.

Plenty of spare altitude is a "must" here.

BEWARE!

The Roar and Snort

Weather-wise pilots ground light planes when the "Chinook" hits the Continental Divide.

By WAYNE NYLAND

(Knowledge of flying conditions over the nation is inherent in good airmanship. FLYING magazine is interested in promoting that knowledge. Calling attention to the fact that unique conditions do exist in various areas can be a real contribution to good airmanship.—The Editor)

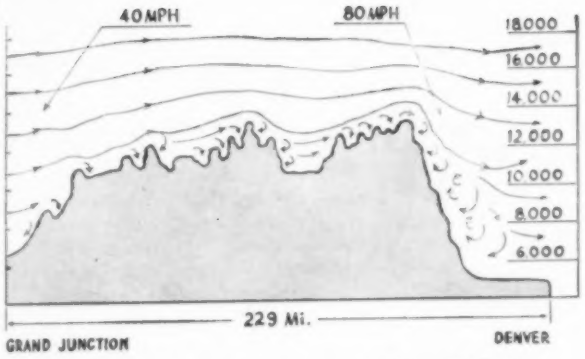
FROM THE BORDER of Wyoming south to New Mexico, the Rockies form a giant escarpment often 13,000 to 14,000 feet high. Here are more peaks above 14,000 feet than elsewhere in the United States.

When westerly winds cascade over this 300-mile air dam, especially in winter, the Continental Divide frequently sees wind velocities of from 70 to 90 knots accompanied by extreme turbulence. At such times, the area is no place for a light airplane.

Recently two Air Force planes from Lowry Air Force Base, Denver, were sent on a "hay lift" mission to feed starving elk bogged in deep snow around Gunnison, Colo. Although CAVU conditions prevailed, the planes—one a C-47, the other a C-82—were so buffeted by the 100-knot wind that they were forced to turn back. The wind velocity and turbulence continued for almost a week, although skies remained perfectly clear.

This region of exceptionally high winds and turbulence

Boulder, the exit portal of the Venturi Horn.



Turbulence created by strong west winds in stable air.

seems to be bounded on the south by Mt. Evans, and on the north by Long's Peak, 50 miles distant. In this slot westward from Denver to Grand Junction, 229 miles distant, pilots report they have experienced some of the roughest flying of their careers.

Forrest Horning, of the U. S. Weather Bureau in Denver, who began a study of the region in 1948, states that the mountains have a peculiar *Venturi effect* on the westerly winds. When the pibals at Grand Junction and Denver show westerly winds of 35 knots at 12,000 feet, velocities will be 80 to 100 knots over the Continental Divide.

A charter pilot who recently took a stretcher case to Oakland, Calif., from Denver learned the hard way. Winds in Denver were 18 knots, with gusts up to 30. Experience told him he should take the southern route, but time was precious (famous last words!) and he decided to fly directly over the Divide.

He found headwinds of at least 80 knots. To avoid the strong downdrafts he climbed the *Bonanza* to 15,000 feet, 3,000 feet higher than Corona Pass. However, directly over the Divide, he hit a downdraft and lost 3,000 feet before realizing what was happening. Another 2,000 feet slipped away before he could assume level flight. Luckily he had been downdrafted in a canyon rather than on top of a ridge. He returned to Denver where, after catching his breath and collecting his wits, he took the southern route through New Mexico and Arizona.

Boulder, 30 miles northwest of Denver, is at the exit portal of this Venturi horn. Here local flyers generally follow two cardinal rules: "keep hangars closed when west wind blows," and "mind the mountains."

These rules are born of grim experience. Local pilots have only to look up at the Indian peaks—Arapaho, Navajo, Kiowa, Piute, Apache, Chief's head, all near 14,000 feet—to be reminded of flyers who disregarded experience.

The west wind cuts peculiar capers here. It may be only 10 knots on the ground, yet 500 feet up be hurtling eastward at 60 knots. This explains why visitors to the airport sometimes find everything "buttoned up," though there is not enough breeze to stir the windsock.

Reason for this is that the west wind is a warm wind—"Chinook" as the natives call it—flowing over the mountains from the deserts of the southwest. As it rolls over the Divide, a layer of cold air on the ground may prevent the Chinook from coming down.

But the Chinook is always fighting to get down, and when it starts breaking through the cold cell, strange things happen. Detached arms of this warm air hurtle out of canyons and rip along a meadow or creek bed, while on either side the air may be perfectly calm.

There is no way of predicting when this Chinook will break through the cold air. Recently, on a Sunday morning, a student-pilot encountered one of these wildly probing arms of the Chinook. Plunging and wallowing crazily in the boiling air currents, he struggled to get back to the airport which, fortunately, was only a few miles away. On landing, he said that he felt as if he had been thrown into a cement mixer, and for two weeks afterward his back and neck ached.

One evening while a pilot of an AT-6 was visiting the author, a blast of air suddenly rattled the windows and shook the house. The Chinook had arrived. We dashed to the airport to lace my friend's plane more securely to the ground. In the morning we found (*Continued on page* 63)

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The Air Force, seeking 20,000 new recruits within 90 days, modifies requirements in view of urgent need.

The Air Force flight training program at a glance—a 500 mph jet F-80 Shooting Star flies past cadets getting basic training in a 140 mph T-6

THE WAY UPSTAIRS

By C. L. HAMILTON

Pre-flight instruction is an essential phase of the training given jet pilots at Williams Air Force Base near Phoenix, Ariz.

THE Air Force seeks 20,000 flying cadets in the next three months to help build its program for a 143-Wing defense structure. Once brought to this size the Air Force will require an annual output of 7,000 trained pilots and observers.

Due to present urgency in development of the 143 Wings, cadet qualifications have been slightly lowered in several respects. Minimum age is temporarily reduced from 20 to 19 years, although the maximum age remains at 26½ years. Two years of college work remains the minimum educational requirement for direct entry into the cadet corps.

Simplification of enrollment for cadet training, once a complicated procedure, now enables the applicant to complete his physical and other examinations at his nearest Air Force Base, whose location will be known to every recruiting officer. Birth certificate and transcript of college credits are the essential papers to have in hand.

For the lad who lacks the college credits but is a high school graduate, there is also available a new avenue to flight training. Formerly he might enlist in the Air Force and after 18 months service in the ranks make application for cadet status. Now he can make that application im-

Team-mates on the Allied fighting force are these newly graduated jet pilots: Sgt. Marcel Wybenga, the Netherlands; Sgt. Jean Lemay, France; Sgt. Trygve Jorgensen, Norway; Lt. Leif Jepsen, Denmark; Lt. Leon Barfield, Forsythe, Ga.; Sgt. Jean DeBeauffort, Belgium.

mediately upon enlistment and, if able to pass the examinations, enter flight training without delay.

Survey of the Air Force cadet corps now in training shows the average age of trainees to be 22 years. Thirty-seven percent are already college graduates, and almost the whole of the Corps has the required two years. This fact would seem to militate against the chances of the applicant who lacks some college work, but at least the avenue is open for the boy who can make the grade without formal educational credit.

Pre-flight and primary cadet training is currently carried on at nine civilian contract flight schools and one Air Force Base. Locations of the civilian centers are at Moultrie, Ga., Bartow, Fla., Hondo, Texas, Maulden, Mo., Bainbridge, Ga., Marana, Ariz., Kinston, N. C., Greenville, and Columbus, Miss. The regular Air Force Base utilized is that at Goodfellow, San Angelo, Texas.

Primary training lasts approximately six months and includes 130 flight hours in the T-6 along with 264 hours of academic work.

From primary training the cadet proceeds to basic which is broken down into two phases. In basic the cadet gets another 70 hours formation and instrument flying in the T-6 and then proceeds to 65 additional hours in the jet T-33 and F-80 or the F-51 or B-25 medium bomber. Here he digs into the problems of all-weather and night flying. Completion of this phase prepares him to receive the coveted wings.

During training the cadet has received $105 per month plus food, housing, uniforms and other benefits. Upon graduation he is commissioned a Second Lieutenant of Air Force and after 30 days furlough begins to earn approximately $5,000 a year. A grant of $250 uniform allowance helps him get all slicked up for what lies ahead.

Cadets report a pleasant part of the program to be the opportunity for contact with foreign students from NATO and other nations training in the United States. END

All cadet training is not done in the air. Here student jet pilots study the mechanics of the jet aircraft they will fly.

A handclasp and best wishes speed a pilot on his way. The U.S. Air Force has openings now for 20,000 additional recruits.

UNIVERSITY OF MICHIGAN LIBRARIES

Can Yugoslavia

By WILLIAM GREEN

THE RIFT between Yugoslavia and the Soviet Union in 1948 threw Marshal Tito into the Western camp. His need for airpower has been constant since that day.

The question of Yugoslavia's own aviation developments becomes of western interest. In what quantity can the Yugoslav Air Force man airpower? What quality of military aviation can she handle? What type of aircraft is most suitable to Tito's defense needs? These questions have vital bearing on how the West should answer Tito's plea.

Faced on all sides, except on the Adriatic, by territorially-hungry neighbors, backed and armed by Russia, Yugoslavia has a dual strategic problem. If attacked by Bulgaria or Albania, the Tito forces would be involved in mountain warfare, in which they excel. But, if as is probable, attack should come across the plains from Hungary and Rumania, the Yugoslavs would face concentrations of enemy tanks and airplanes. Tito could meet such attack only by virtue of western armament . . . principally airpower.

It is in the air that Yugoslavia is weakest. Her 10,000-man Air Force with a paper strength of 500 planes is short of spares, to say nothing of parts and supplies. Strenuous efforts are being directed to reviving and expanding the small pre-war aircraft industry, but, apart from materials, industrial experience is in short supply.

The pre-war Yugoslav air arm was a moderately effi-

Yugoslav Air Force crew trainer is powered by two Czech Argus As-410 engines of 465 hp. each. Plane carries 6-8 students.

Although weak in aircraft and manufacturing potential, Tito's Air Force is strong in trained manpower.

Right, above, are Yugoslav Air Force trainers, Type 211 (foreground) and Aero-2. Both are powered by Walter Minor engines. At lower right is Yugoslav S-49, a redesigned Yak-9, reconditioned VK-105 and VK-107 engines. Top speed, 370 m.p.h.

Defend Her Skies?

cient force which, operationally, suffered a fate similar to that of any other small air force that had the temerity to oppose the Luftwaffe. It was, incidentally, the Commanding Officer of the Air Force, General Simovic, who engineered the *coup d'etat* that unseated pro-German Regent, Prince Paul, after he had signed the mutual aid pact with Adolf Hitler.

The present Yugoslav Air Force obtained its first planes on May 21, 1942—a date still celebrated in the country as Air Force Day—when partisans captured two German fighters during a raid on an enemy-occupied airport. Some time later numbers of young partisans were sent to Russia for flight training, and the U.S.A.F. and R.A.F. supplied the Yugoslavs with some combat airplanes. By 1946, Tito's air arm had regained its pre-war strength and had become a power to be reckoned with by Balkan standards. Its planes, with the exception of a few Spitfires, Messerschmidt Me-109's, and North American T-6's, were of Soviet origin and its organization was formed broadly on Red Air Force tables.

Two years later, when Tito was ex-communicated from the Cominform, all aviation expansion stopped cold. Supplies of parts, oil and fuel from Russia were immediately cut off. Yugoslav airpower was thrown back on its own. Serviceability rapidly decreased and morale faded with dwindling fuel.

Originally, in 1948, Tito's attitude toward Western military aid was extremely cautious. As recently as February, 1951, he stated that Yugoslavia would not buy arms from the West. Presumably this reflected a desire to lay himself open to no Soviet charges of conspiring with the Western Bloc against the Soviet Union.

However, Soviet pressure kept increasing and in June, 1951, Tito's cautious policy was (*Continued on page 52*)

Medium-size freight and troop carrier glider was designed for Yugoslav Air Force by Ivo Sostaric, famous sailplane designer.

FLYING QUARTET

First Tenor Bob Edwards, Baritone Wayne Hooper, Second Tenor Bob Seamount and Jerry Dill, bass, backed up by Maggie.

When Maggie and the boys were somewhat younger, they fell in love. The cross-country adventures of all five amounted to quite a relay race.

By BOB EDWARDS

IT WAS 1946 and the new red and yellow airplane we shall call "Maggie," NC2424E, was rolled out of the factory. Bob Seamount and Wayne Hooper were in California, singing with the King's Heralds Quartet on the "Voice of Prophecy" radio. Jerry Dill was at college in Washington State. I had finished college and was working in Florida. No one knew then that the five of us (quartet and Maggie) would cross paths.

The Voice of Prophecy is a religious radio broadcast, coast to coast, every Sunday on Mutual and ABC networks. Each summer our group makes personal appearances over the States and Canada at camp meetings, youth forums and radio rallies.

Bob Seamount and Wayne Hooper started flying in 1945. By the time Jerry and I joined the quartet they were old pilots.

That's the way things stood when we all packed our suitcases into the Chrysler for the summer tour of 1950. The first stop was Wichita, Kan.

It is unusual for us to have a half-day to spare on these summer tours. Usually when we are not driving, we are singing, eating, or sleeping. On this particular trip however someone slipped a cog. There was a whole free morning in Wichita.

It is an old joke in our group that wherever we go one of us has a relative. Wichita is no exception. Wayne's sister and brother-in-law, Jack and Mrs. Phillips, live there. Jack works at Boeing and flies in his spare time. He invited us to Sunflower Airport and that's where we met Maggie. It was love at first sight and when the owner offered her for $300 we went into a huddle. Only $75 apiece and she would be ours! We had some money, but that was supposed to pay meal checks for several weeks. You can't live without eating—or can you? Maybe—? We could pool our money and go on canned beans and peanut butter— Yep. Pretty soon we had rationed and rationalized ourselves into it. For better or worse, Maggie was ours.

There was still one problem to solve—what would we do with her while we finished our trip. There were weeks and weeks of close appointments. We'd have to leave her and pick her up on the way back west.

The following weeks of sandwiches and beans were no joke, but when things looked darkest, thoughts of Maggie waiting in Wichita snapped us out of it.

As the weeks went by there were numerous debates about how the joint ownership should be run. A constitution was drawn up, with a bill of rights, and 21 amendments! We bought books on navigation, Civil Air Regulations, meteorology, and we got FLYING before the ink was dry. We stocked up on sectional maps, flight charts, plotters, drift indicators, protractors, and latest editions of the Nautical Ephemeris and World Almanac. If we had been

flying around the world, we wouldn't have needed much more equipment.

Finally we met our last appointment and started for home. Wayne talked Jack Phillips into flying Maggie down to Oklahoma City. We got into town before sundown but too late to fly.

That night we stayed in the Rail Fence Motel, spread the maps on the floor, and plotted the route. Since she is only a two-place plane, we had to divide the distance. Jerry and Bob were to fly the first day and meet us in Gallup, New Mexico, then Wayne and I would fly her on home the next day.

In the morning we were all up at dawn acting like a bunch of kids on Christmas morning.

While Bob and Jerry climbed in and fastened the seat belts, Wayne and I propped the engine, unchucked the wheels and watched enviously as they taxied out and took off.

We ran back to the Chrysler and tried to keep them in sight, but before long all we could see was a speck in the sky, then they were gone.

We knew they were going to stop in Amarillo to see some of Jerry's relatives. That would give us a chance to catch up. We pushed the Chrysler westward as fast as the law allows and upon reaching Amarillo phoned to see if they were still there. Sure enough they were. From here on we would have a head start with the car. Every time we stopped for gas we stared and squinted. No plane. Hour after hour went by. Still no plane.

About 5 p.m. we reached Albuquerque, but there wasn't a sign of them. We decided to go on to our trysting place in Gallup.

When we got to the motel, there was a long distance call waiting for us. Guess who? You're right. They were in Albuquerque and had quite a tale to tell.

They hadn't been up long before they found the compass 45° off. That was a help! Aside from that everything went fine—for a while. In the afternoon, they left Amarillo and hopped to Tucumcari, New Mexico. About 100 miles west of Tucumcari a light rain began to fall, but visibility was still good, so they kept on. Soon, however, a strange vibration set up and kept getting worse. Maggie started losing altitude and the vibration became violent. Bob picked out the likeliest place to land—a field of buffalo grass with a deserted road running alongside. No time to drag the field, which was rougher than it looked. The grass grew in big clumps and every one threatened to fold up the landing gear. Maggie jolted to a stop.

Outside, the grass was up to the wings. Resignedly Bob and Jerry looked under the ship. Wonder of wonders! There were the wheels still fastened to the plane. After a thorough check they found the only damage to be a two-inch tear in the fuselage. More importantly they located the gremlin that had brought them down. On one end of the prop the tip canvas had come loose to form a pocket that was catching the wind and making that terrific vibration. In the Bible it says, "If thy hand offend thee, cut it off." To say the canvas was offending was to put it mildly, so they followed the Biblical injunction and cut it off. When they cranked her up the prop was out of balance and Maggie still vibrated. Off came the canvas on the other end. That did the trick.

It took time to taxi to the road through the buffalo grass but patience and full throttle accomplished the job. The road was narrow, but long enough for a good take off.

Unfortunately the taxiing had used up a lot of gas and Maggie had to make another unscheduled landing for fuel before she got to Albuquerque, this time under infinitely better circumstances.

Next morning Wayne and I were at the Gallup field to meet the pair when they came in about 7 a.m. We stoked Maggie with more gas, and Wayne and I taxied down the field and took off. Below stretched the painted desert. Out yonder was Pilot Rock. To the north, but out of sight even for us, was the Grand Canyon. It didn't seem like any time until we were landing at Winslow, where we filed a flight plan for Prescott. Our alternate was Cottonwood-Clemenceau, but we knew (*Continued on page* 61)

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JET TRANSPORTS

By CHARLES CORDDRY

Out-designed and out-produced by Britain in the transport of tomorrow, can the U. S. hope to close the gap?

NOW THAT everybody concedes British jet transports will be the unchallenged first to race the sun along the world's commercial air routes, a modest new effort is afoot to get United States development out of the doldrums. We have lost the first round; we have no chance of participating in the beginning of turbine-powered air transportation.

The de Havilland *Comet*, which British Overseas Airways Corporation expects to put into passenger service this spring—slicing in half many present scheduled flying times—will enjoy at least two years of freedom from competitive types in the judgment of a U. S. government survey group.

But the United States "may not have lost an irretrievable amount in competitive position by delaying until this time," says the Foreign Survey Group of the Civil Aeronautics Administration's Prototype Aircraft Advisory Committee, providing: (1) there is intensive testing at once of turbine aircraft to gain design, operating and airport data and (2) a start is made on actual aircraft development.

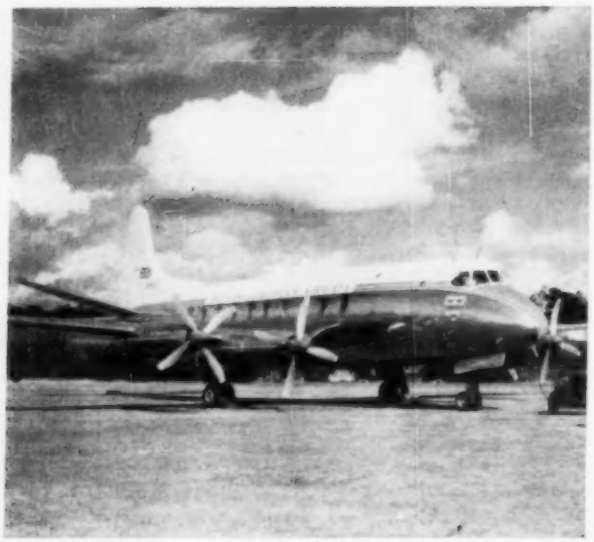
The group consoles itself that turbine-powered designs to be produced in this country will have superior performance to the 490-mile-an-hour British ship. But you can't fly a blueprint very far and that is what we have just now.

Congress, which refused a $597,000 item for jet transport tests last fall, has been asked by President Truman to furnish a supplemental appropriation of $1,400,000 for the same purpose now. If all goes well, CAA may get a test program underway, using Air Force and Navy combat jets and possibly Canada's Avro *Jetliner* in simulated airline operation, just as Britain's happily named *Comets* are spreading their wings about large parts of the world. British European Airways, meanwhile, will begin receiving the first of 28 turbo-prop *Viscounts* which it plans to operate throughout Europe.

So the air world stands now at the threshold of 500-mile-an-hour speeds with all they mean, potentially, to business, recreational habits and international relations.

If anyone 10 years ago had predicted such astonishing progress within a decade, derision would have been his reward. Yet there the *Comet* stood one day last August, its clean form silhouetted against the impressive terminal at Karachi—London 4,545 miles and 11 flying hours behind. Such proving-flight times became commonplace for the so-called *Comet I*, powered by four Ghost engines of 5,000 pounds thrust, of which BOAC is purchasing nine. Speed and range will be boosted upward in the *Comet II*, to have four Avon engines of 6,500 pounds thrust, and BOAC has 11 of these on order. *Comets* carry from 36 to 48 passengers.

"Britain," says Sir Miles Thomas, BOAC Chairman, "is after world leadership and we're going to get it." British officialdom has made clear that re-armament considerations will not unduly interfere with transport aircraft development.



BEA, with 28 of these turbo-prop Vickers *Viscounts* on order, counts on these planes to boost its traffic throughout Europe.

Britain's de Havilland *Comet*, now ready for passenger service, is a good two years ahead of the best competition the U.S. can offer.

Present BOAC plans call for introduction of jet transports on the London-Rome-Cairo route this spring, to be followed by similar service on London-Cairo-Johannesburg and London-Singapore routes. First operations thus are largely over land routes with intermediate airports and terminals where the holding and approach problems are at a minimum.

Use of *Comets* on New York-Bermuda and New York-Nassau routes probably is 18 months away and, because the *Comet II* is yet to be developed, transatlantic operations into New York are not likely until 1954. BOAC also contemplates round-the-world operations including, apparently, a segment crossing North America which would link with services of another *Comet* customer, British Commonwealth Pacific Airlines.

When the extent to which BOAC's plans spread into the future is realized, the prospects for America overcoming the British lead are better appreciated.

So far as the CAA's Foreign Survey Group is concerned, the United States position is considered "potentially sound" from the standpoints of technical development and quantity production techniques. Where Britain leads by three to five years is in experience with turbine-powered operation. And "it is difficult to overestimate the importance of early operational experience in fostering sound designs and avoiding costly and hazardous errors in design and operation."

In the whole field of civil transport development, using turbine power, Britain has an eight-year start on America and has invested an estimated $400,000,000 of government funds.

Besides prototypes, the program has resulted in three production transports—the *Viscount*, the *Comet* and the Bristol 175, the latter a 90-passenger turbo-prop plane scheduled for delivery to BOAC in two to three years.

The American story has been different. President Truman's Air Policy Commission and the Congressional Aviation Policy Board proposed that the government finance new transport development. But, partly because members of the aircraft industry could not agree on what they favored, no program was worked out. Finally, in September, 1950, Congress declared its policy to promote transport development through financing of prototype tests and authorized expenditure of $12,500,000. At this writing, however, not a cent has been appropriated.

Concern about the present British lead has resulted in the proposal to spend $1,400,000 right away on testing and another bill is pending which would grant construction differential subsidies like those used in the shipping field to offset lower foreign construction costs.

Under stimulus of the armament program, moreover, the Air Force and Navy have taken a previously lacking or dormant interest in new transport types which should prove of value to commercial aviation. These projects are now underway:

1. Lockheed Aircraft Corp. holds an Air Force contract to develop a medium payload cargo plane, the L-206, with turbo-prop engines.

2. Lockheed is developing for the Navy two *super-Constellations* to be powered by Pratt & Whitney T-34 Turbo-Wasp engines.

3. The same type P & W engines are to be installed in a Douglas C-124 Globemaster for the Air Force.

4. The Air Force has ordered a "limited number" of *Convair Liner* type planes to be equipped with Allison T-34 turbo-prop engines.

(*Continued on page* 58)

God and Olson at the Creek

By RALPH OLSON

I BOUGHT a used 1946 Aeronca Champ, and I still think it is the toughest and most economical airplane for a ranch.

I hired a Navy cadet at four dollars an hour to teach me to fly, and after 13 hours in the back seat I wasn't much better off than when I started so I tried to sell the plane. No go!

When my coyote-hunting friend heard of my plight, he came to my rescue. He put me in the front seat and after a few hours—a big headache to him and a few grey hairs to me—he turned me loose.

For quite a while I herded sheep with it. Then I finally got my private license from one of the best instructors in the State. At last I felt good.

It is a habit of mine to take off about 15 minutes any day to go to the local store about 10 miles from home and get a few fresh vegetables, fresh meat, ice cream, candy and pop for the kids. We used to be lucky to get a treat like that once a week before we got the plane. I would land in my brother-in-law's big alfalfa field close to the store—a lot nicer place than I had to land on at home, if the alfalfa wasn't too high.

One particular day, about 100 in the shade, we thought some ice cream would be all right, so away I went. This alfalfa field is about a half mile long, east and west, and pretty wide. At the west end of the field is a deep creek with straight banks.

The field had been mowed and stacked about a week before and the east half had come up about four inches high while the west half had never started. The ground was still bare and hard and the old heat waves were just boiling up from it. The old, bold pilots had told me there was always a 50-foot solid cushion next the earth regardless of wind or weather, so why worry about heat waves?

I came in from the east pretty high over the telephone line because the air was bumpy. I used up all the green runway and was just on the edge of the bare ground and thought it should set down. I sat with the stick in my lap and my mouth open.

The airplane kept touching ground, then flying, until I noticed the creek was getting too close for comfort so I added full throttle for another try. Just as I got over the creek, it decided it would land. The Lord got there ahead of me and made a nice sloping bank—the only one for half a mile either way—so I landed three point right on the smooth, sloping bank with full throttle. It seemed to bounce 40 feet in the air and level off flying just as if nothing had happened.

Being a little nervous by this time, I looked down and to my surprise the left wheel was still on. Believe it or not, the right wheel was also in its accustomed place. I looked back—the tail was still on, and I noticed a big dust cloud hanging over the creek. I covered quite a bit of country before getting ice cream-hungry. By then the dust had settled.

This time I came in opposite and let the heat waves carry me over to the green stuff. When I came to a stop and got out to examine the plane the best I could, and couldn't find a bolt loose, I said: "Old boy, you must be made of iron."

There's a family living on the north side of that alfalfa field. The lady of the house had pretty black hair and was watching the flying sheep herder make the landing. Now I notice lots of grey in her hair. The first thing she asked me when she saw me was how I keep from getting hurt as rough as I am with that airplane.

I am still a little suspicious about that 50 or 100-foot cushion they tell about. END

What kind of program is needed to re-focus the eyes of America's youth skyward? It's more than possible that..

Soaring Has An Answer

Youngsters flock to admire the big man-made bird.

By JON D. CARSEY

President, Soaring Society of America

THE QUESTION, *HAS AVIATION LOST THE AMERICAN BOY?*, is heard in a crescendo of refrain.

The answer is quickly indicated, and it is a discouraging one. The editor of FLYING who posed the question so forcefully in the March issue knows the answer. If he did not he would have to go no further than the nearest private airport to get it from the managers and operators, or to consult the records of CAA relative to student permits (which he has done), or to consult the personnel procurement officials of the aircraft industry, or the published facts regarding the number of college undergraduates who are potentials for the aircraft manufacturing industries' engineering staffs.

He also knows that the American boy does not have to be sold aviation, but that interest in flying is inherent, that flying is a natural aspiration of every youngster who can observe the flight of birds and men. Evidence of this is all about us—in our own back yards, in our parks, on the stubble fields beside our highways, in the shouts of the airport operators to "Get off the field, you're in the way," and in the records of the multi-million dollar model industry.

The American boy is not lost to aviation—aviation is lost to the American boy.

When he has fully exploited his skills in designing, constructing and flying models, and turns to the next natural step to find it so far removed from his fondest financial hopes, some one or two of the hundreds of other attractions that are within his means win and hold his interest, and aviation has lost him.

The American aviation industry and the Air Forces, unlike their counterparts of both Western Europe and the Iron Curtain countries, are overlooking (as they have in the past) the potentialities of the (*Continued on page* 64)

TRIPLE THREAT ORPHAN

Separated from parent units and without a base to call "home", VMO-6 makes the fantastic job seem routine.

By SGT. BOB SAID

"HANG ON, BUD," the tired Navy corpsman said to the Marine on the stretcher. "The 'copter's coming."

Crouched beside a tiny land surface hacked out of a steep Korean mountainside, the medic administered a shot of morphine to the young Leatherneck. Badly wounded by a mortar shell, the youth's only chance for life lay in immediate surgery at the rear aid station.

Even as he spoke, the faint roar of the helicopter could be heard far down a canyon. Within moments, a tiny Bell HTL-3 rose into sight and inched down to land, and so cheat death of another victim.

Early next morning, a few miles to the east, an unarmed "grasshopper" liaison plane circled above an enemy-held ridge. In the rear cockpit a trained observer scanned the hillside and spoke tersely into his radio mike. Immediately a burst of smoke from a white phosphorous shell appeared on the hill, a short distance from an innocent-looking rockpile.

"Come right 50 yards and fire 10 rounds for effect," radioed the observer. To the south a gun crew adjusted the sights on their huge 155 mm. artillery piece, and high explosive missiles began raining down on a cleverly concealed Communist gun position.

At the same time, 40 miles deep in enemy territory, another tense drama was being enacted. A *Corsair* pilot, his plane riddled by anti-aircraft fire, had bailed out in the heart of a Red build-up area. While three other members of his flight circled overhead, the downed airman played a deadly-serious game of hide-'n-seek with Communist troops—a game he couldn't afford to lose.

In answer to an emergency broadcast, a Sikorsky HO3S-1 helicopter sped northward to the scene and hoisted the flyer aboard, under the very noses of an entire Chinese field army.

There you have three widely separated incidents, utilizing three completely different types of aircraft. But a

Marine Major Vincent J. Gottschalk of VMO-6 prepares to take off on a mission adjusting artillery fire against Korean foe.

single identification painted on the side of each plane marks them all as belonging to the same unit—VMO-6.

"V" stands for heavier-than-air, "M" for Marines, and "O" for observation. The numeral designates this particular unit as Squadron Six. Ordinarily a unit of this type flies only liaison planes, but this squadron's ambitious pilots have tackled two others in addition. They are the Sikorsky HO3S-1 'copter for behind-the-lines pilot rescue and general liaison missions, and the little Bell HTL-3 for front-line evacuation work.

In the dark days of the Pusan perimeter late last summer, with Red forces knocking on the door of South Korea's last major city, VMO-6 arrived in the Far East aboard the aircraft carrier, USS *Sicily*. Pilots ferried the lightplanes and helicopters from Japan onto a narrow city street in Masan, Korea, and at dawn on Aug. 6, 1950, began what was to be one of the outstanding sagas of Marine aviation since World War II.

Helicopter and liaison pilots alike were "converted" fighter pilots, and although many had seen combat in the last war, they had little idea of what to expect.

Take, for example, the day an Army patrol was pinned down at the base of a hill by heavy enemy fire. Out of food and water, running short of ammunition, they faced death or capture unless resupplied. Marine Capt. William Parker of Providence, R. I., and T/Sgt. Pat Britt of Brownville, Pa., came up with an answer. They attached bomb shackles from a fighter-bomber to the wing struts of their Convair OY (L-5) lightplanes, then in use by the squadron. On these they hung bundles of food and ammunition, and cans of drinking water. Wires leading into the cockpit enabled them to drop the load with a healthy tug.

Flying down a deep valley to reach the trapped patrol, the two pilots had to hug the deck to avoid machine-gun and rifle fire from surrounding hills. Despite these hazards they dropped the supplies right in the patrol's lap and returned safely to their base.

While VMO-6 observation pilots were writing history, the squadron's helicopter pilots were hard at work on a whole new volume.

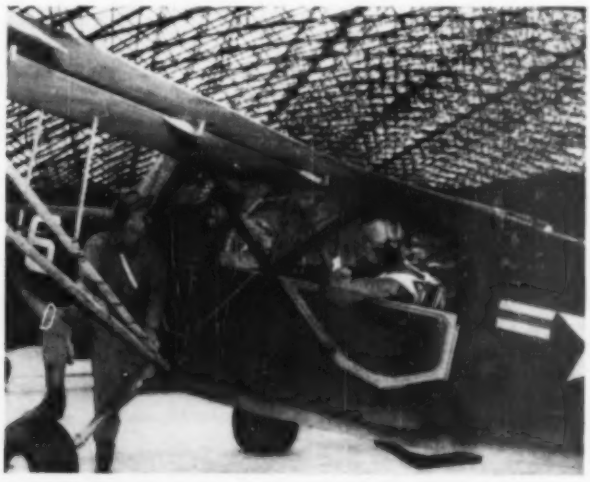
No canyon was too deep, no mountain too high, no hillside too steep for the ungainly-looking 'copters to pick up wounded. They even operated after dark, despite the fact that the 'copters had not a single night-flying instrument on the panel.

Men like Capt. Vic Armstrong of Portland, Ore., 1st Lt. Gus Luddeke of Fredericksburg, Va., Capt. Gene Morrison of Santa Ana, Calif., and a host of others worked minor miracles in the way of life saving, in the days when evacuation of wounded by helicopter was an infant science.

During the now-legendary withdrawal of the 1st Marine Division from the Choshin Reservoir area deep in North Korea, enemy air and anti-aircraft resistance resulted in many pilots being shot down. The bitter 27-below-zero cold, high winds and mountainous terrain hampered rescue operations, but VMO-6 pilots recovered many downed U.N. airmen in the reservoir area.

It was during this same operation that VMO-6 pilots proved their flying versatility. (*Continued on page* 46)

Marine pilots attached to VMO-6 study a sectional map of Korean terrain before starting a mission in light observation planes.



Inside a bombed-out hangar, Marine Corps airmen discuss a photographic flight to record front line troops on the move.

LET THERE BE LIGHT

By BOB BLATT

NIGHT FLIGHT by private pilots in single-engine aircraft is a controversial subject. Each pilot must resolve it for himself. Many factors enter into the decision.

One pilot says, "The man who flies single-engine planes at night must consider himself expendable." Another modifies his opinion—"Night flight by private pilots in single-engine planes depends upon familiarity with the terrain and route." A third judges night flight acceptable to him with extra precaution in respect to weather and pre-flight preparation.

On one point, however, everyone appears to agree: any pilot may be inadvertently caught aloft after darkness and the lighting of small as well as large airports is therefore important.

Additional to this safety consideration is the economic factor of extending the operating time of the small airport further into the dusk area. Many private pilots can fly only in the evenings after work and field lighting at community or private ports would relieve them of "sunset jitters."

In a survey recently conducted by the writer among 50 private pilots with an aggregate of 13,137 hours night flight, it was brought out that present lighting aids are considered definitely inadequate.

Of the 50 pilots interrogated, about half had logged from 100 to 500 night hours, a third of them less than 100 hours, and the remainder more than 500. Twenty-one

A small mobile floodlight unit, throwing light on rows of low-set reflectors, effectively outlines the runway at a private airport at night.

A small airport junior rotary beacon provides one clear and one green beam rotating at the standard rate of six rpm. This installation is at Frederick, Md., airport.

With a few dozen light bulbs, mason jars, peach baskets, cables, and old-fashioned ingenuity in good measure, Deer Park airport makes business hours of dusk hours.

Cone-mounted medium intensity green threshold lights mark the end of the runway at a small New York state airport. Pilots find this type of light easy to detect.

Low-cost airport lighting is needed before private pilots can lose those "sunset jitters".

percent said they did not deliberately fly cross-country after darkness. Two pilots with 500 hours each reported as having given up night flight altogether.

To the question, "how many small airports with any field lighting whatsoever have you seen," the answers averaged six. Since the survey was nation-wide and since some 4,000 of the country's 6,000 fields are Class One or smaller, it is apparent that the matter of general airport lighting has not been vigorously pressed.

Most private pilots avoid terminal airports on account of heavy traffic. Many are confused by the varying taxi patterns at the big fields and 93 percent of my survey group said lighted directional taxi signs would be helpful.

The group as a whole readily recognized the problem of lighting cost for small airports. While the Civil Aeronautics Administration has set up good standard specifications for small airport lighting, and several manufacturers have the equipment available, it is still the case that a complete system of this kind would cost $10,000 or more. Private operators cannot meet such capital expenditure and, some kind of federal, state or municipal aid will be necessary.

That there is need for a low-cost lighting system for small airports cannot be questioned. Cost should be around $500. Operators could and would meet such a bill. The majority of private pilots interviewed felt that CAA and equipment manufacturers are challenged to develop a low-cost system for the little fields.

Practically all private pilots are defense-conscious and foresee that in national emergency they would need around-the-clock facilities for service in Civil Air Patrol or other assignments. They point out that small field lighting, if now made available, would give them a chance to get familiar with night landings and take-offs, although they might do no cross-country flying by preference.

It cannot be gainsaid that among private pilots, and even some commercial pilots, there is a definite lack of knowledge about the meaning and identification of various lighting aids at airports and along the airways. Some of the survey group suggested that CAA require all pilots to have more and better knowledge of lighting aids and include questions on the subject in pilot examinations.

On the subject of airway beacons, 93 per cent of the survey group said they are helpful and more than half the pilots declared they make use of the airway beacon tower "course" lights to identify the location.

As of January, 1951, the CAA had already extinguished about half of the country's 2,000 (*Continued on page 59*)

A lighted wind-tee and sock. The sock support is hinged to aid servicing. The tee can be fixed as a direction indicator or free-swinging.

Bob Pendley has a Cessna background here, but he learned his lesson in a *Cub*.

You're bound to emerge a wiser pilot when the ridges close in ahead and there's no room to turn, no power to climb —IF you emerge at all.

I Learned About Flying From That! NO. 149

By ROBERT E. PENDLEY

SEVERAL YEARS AGO, a local airport operator offered to pay my expenses to Buffalo, N. Y., and back if I would ferry a Piper *Cub* which he had bought there to Williamsburg, Va. I gladly accepted, since I figured I would get a lot of fun out of a free trip and some free flying. As it turned out, I got a lot more experience than fun out of the trip, which involved a few fast rounds with ice formation, instrumentless instrument flight, and terrain clearance and maximum angle of climb problems.

After I had returned home, and had described my hair-raising experiences to some of my armchair pilot friends, instead of kind sympathy I got criticism, with accusations of poor judgment on my part. I don't agree that poor judgment on my part properly explains by itself all of the situations I got into. Rather I feel that some of these situations are exactly the kind which will occasionally confront day VFR pilots who wish to fly someplace and fly there even when the reported weather is close to VFR minimums. I therefore feel that the lessons I learned should be of benefit to other pilots.

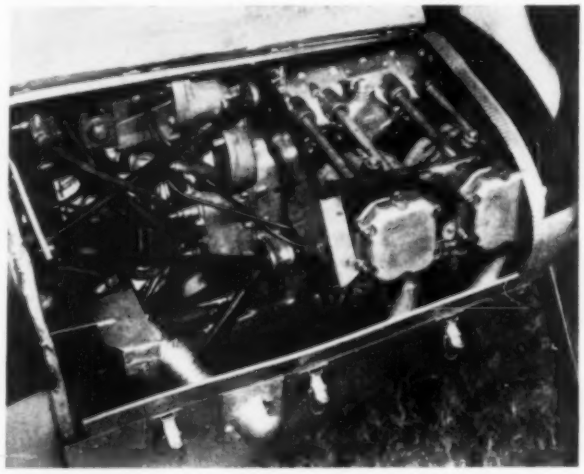
My friend Don accompanied me on the trip. An overcast, cold March morning with intermittent showers found us at a Buffalo airport, where we were supposed to find the *Cub* rolled out, serviced, and in condition for the trip to Williamsburg. To our dismay, the airplane was found in the extreme rear of the hangar, and it was necessary for us to roll every other ship in the hangar out in the cold rain and wind to get ours to the front. Furthermore, nothing had been done to get the airplane checked and serviced for the flight. Both tires were nearly flat, one wing hung low because of some stretched landing-gear shock cords, and our inspection showed that two plugs had been broken.

We replaced the plugs, changed the oil, and asked the airport operator for a tire pump. He explained that his last one had disappeared, but that it was a good idea to have the tires a little flat anyway when the field was so muddy. Although I was fearful that a valve stem might shear, we ran up the engine in preparation to leave. We found that one mag was no good at low rpm's, but the engine ran very well otherwise.

We taxied to the other end of the field through the worst mud I had ever seen, and just when we were as far from the hangar as we could get, the left tire went flat. Don and I then spent two hours in getting someone to drive us to a service station where we could borrow a pump, in running back and forth through the mud, and in installing a new tube and pumping up the right tire. We got the last tube on the field.

Exhausted, wet, cold, muddy, and hungry, we took off hours later than we had planned. As is always my custom when flying a strange airplane, I assumed the compass was wrong until proved right. A quick check of the compass reading as we flew along a prominent highway near the field indicated that the compass was off by about 40 degrees on southerly headings. We introduced this error into our desired compass course, and soon found that we were tracking close to our course. The airplane had no radio equipment, and no (*Continued on page* 56)

L. M. Barton, president of Diesel Power, Inc., Ray Kirschler, Taylorcraft test pilot, and Jack Gilberti, T-craft engineer, are shown with the test plane. Below, the diesel engine is seen in close-up.



THE FLYING DIESEL

By GLENN INFIELD

TO THE CASUAL observer there was nothing unusual about the plane cruising over the Conway-Pittsburgh Airport. To the group of men on the ground, eyes intent on every movement of the plane, it was a milestone in the development of light plane power plants. To L. M. Barton, the stocky, graying man in the dark shirt, it was the culmination of years of hard work. This flight was proof that his light-weight, aircooled, diesel engine for aircraft was a success.

Diesel Power, Inc., Pittsburgh-Los Angeles diesel engine designers and builders, of which Barton is president, has been working on this engine since the early part of World War II. The engine that was used on this initial flight is eight years old and has approximately 1,500 hours running time on the test block. It was built by Lycoming and modified to suit their needs by the designers of Diesel Power, Inc. It has a rating of 100-horsepower at 2,400 revolutions per minute and 125-horsepower at 2,600 revolutions per minute. The four cylinders, opposed, have a bore of 4⅞ inches. A stroke of 3⅞ inches, 291 cubic inches displacement and a compression ratio of 14 to 1 are other pertinent specifications. The dry weight of the engine is approximately 245 pounds.

According to Ray Kirschler, Taylorcraft test pilot who flew the plane, the sturdy engine took the plane off the ground at an accelerated speed beyond that of a gasoline engine of similar construction, general design and specifications, at an engine-propeller speed of 2,600 revolutions per minute. The diesel engine, say the designers, will gain revolutions per minute in climb to cruising altitude because of several factors. First, the diesel engine burns 30 parts air to one part fuel compared with the gasoline engine ratio of 15 parts air to one part gasoline. Also there are about 15,000 more BTU's in a gallon of diesel fuel or even kerosene—which was used on the initial flight—than in gasoline. Moreover the fact that there is no "fuel suction stroke" in the diesel engine helps increase the revolutions per minute whereas the conventional gasoline engine begins to lose revolutions per minute as it starts its climb. (*Continued on page* 42)

That Others May Live

Over enemy bullets, frozen wasteland or sun-baked desert, Air Rescue Service does its job.

By JAMES M. WHARTON

ENVISION THESE desperate situations:

A group of American airmen marooned atop the bleak, Greenland icecap.

A lone human isolated in the 130-degree heat of the Arabian badlands.

A half-conscious Navy pilot hugging his rubber life raft on the turbulent sea off the Communist-held coast of Korea.

A child lost in the timbered wilds of Maine.

These predicaments are neither fanciful nor disconnected. Each represents an actual challenge to America's Air Rescue Service, a United States Air Force facility. Its mercy missions extend beyond the Arctic Circle and under the vertical suns of the Tropics.

Many a U.N. soldier caught behind Red lines on the Korean peninsula, and scores of flying men unable to make it back to bases, owe their lives and liberty to ARS's rescue.

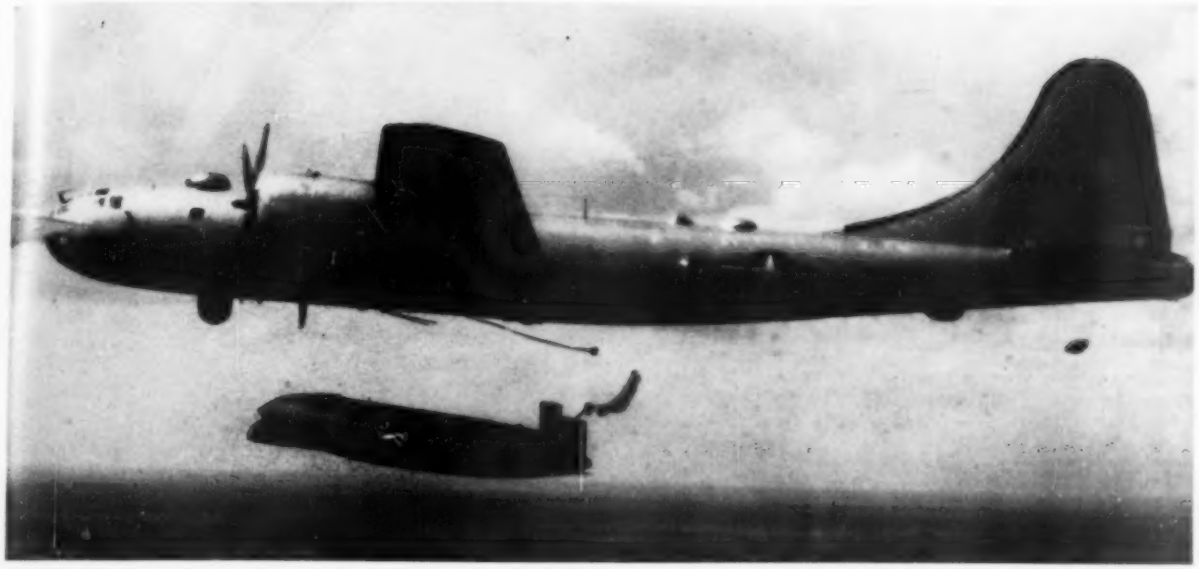
While Korean snatches presently account for most of the total, the Service flies additional thousands of other searches, rescues, medical evacuations and reconnaissance missions each year.

Closely related to military duty and a morally accepted obligation of ARS is the safeguarding of civilian life and government property.

Such exigencies range from locating a hunter lost in

Three "ropes" of men engage in a long upward pull toward the wreckage of a C-47 in unsurveyed Alaskan glacier territory.

Para-rescue team members based in the Azores, including medical technicians, drop to the mountainous scene of air disaster.



An airborne lifeboat drops away from a B-29. To the rear is the pilot chute which pulls out 100-foot main nylon parachute.

the Idaho timber country, to the rescue of a flying missionary in the Philippines: from dropping food, medicine and doctors to snowbound ranches, to the parachuting of first-aid men to crashed civilian pilots.

Top man of ARS is 48 year-old Colonel Richard T. Kight.

It was Kight who flew Wendell Willkie on his famous globe-girdling jaunt, traveling 28,400 miles and visiting 17 countries. Willkie dedicated his book, "One World," to Kight and his crew.

The colonel is a veteran of the Himalayan "Hump," and during part of World War II was executive officer for Air Transport Command's India-China wing at Chabua.

He crossed the North Atlantic dozens of times as a pilot for Air Force's Ferrying Command. He was decorated with the Distinguished Flying Cross for flying a B-24 into Java in February, 1942, in the very teeth of the on-pouring Japs.

Those long missions in far away places have given the sun-blown Texan firsthand knowledge of the needs of world-wide air rescue.

The colonel recently sent this directive to all ARS commands:

"We exist only to save lives. It must be presumed there are survivors of every disaster and every possible effort must be made to find, aid and return them to safety.

"The thoughts of every man in this command must be directed toward creating an organization better equipped and trained to carry out rescue day or night in the least possible time so that no life will be lost through a wasted minute or a misdirected effort."

While at March Field, Calif., one of ARS's most alerted stations, I witnessed a demonstration of this speed and efficiency.

A plane was reported in trouble over Cajon Pass to the north.

The rising and falling shriek of the electric warbler swept the center. Men poured out of barracks and shops, dropping all other work.

A jeep sirened toward the runway, its every cubic inch of space crammed with stretchers, medical supplies, portable radios and sustenance (*Continued on page* 50)

Air Force personnel put on a demonstration of rescue technique as they transfer from a raft to a huge chute-dropped lifeboat.

A PBY amphibian takes off on an ARS mission with rocket assistance. ARS planes are airborne 5 minutes after being alerted.

Experience Behind Regulation

Thirty-six volunteer pilots joined forces with the CAA to get the "word" on instrument flight rules.

The specially equipped cockpit of the *Navion* used in the test.

By EDWARD HYMOFF

HOW DOES the Civil Aeronautics Administration arrive at its regulations?

"That's easy," you say. "With a crystal ball." "Out of a hat." "They have nightmares."

Half in humor, half in indignation, pilots have griped for years about ever-changing and multiplied rules. Sometimes there has been cause. Sometimes not. Aviation is never static. Solomon himself could not always keep ahead of it.

All that can be asked is regulation geared to practical problems and drawn from sound experience. "Sound experience," in the case of the CAB and the CAA, is the accident record which they keep. The two agencies began to wonder why pilots with instrument ratings were killed while flying in instrument weather. They wondered whether military pilots who came out of the war with instrument tickets retained their competency.

When such thoughts occur to men experienced in flying, they look for practical methods to find the truth.

This is a story of one method CAA uses to approach one such problem. The problem has to do with instrument flight regulations for personal plane pilots.

Early last year CAA began to wonder if the present six-hours-every-six-months regulation was enough instrument time to maintain high safety standards.

Up in Cambridge, Mass., is a quietly effective organization called the Educational Research Corporation. Organized 14 years ago as a non-profit company to advance education by research, investigation and experience, ERC has won an enviable reputation.

Who better to find the right answer to the problem of instrument flight requirements for the personal pilot? CAA tossed ERC the ball. ERC set up the first phase of the research project in April, 1951, and another phase last October.

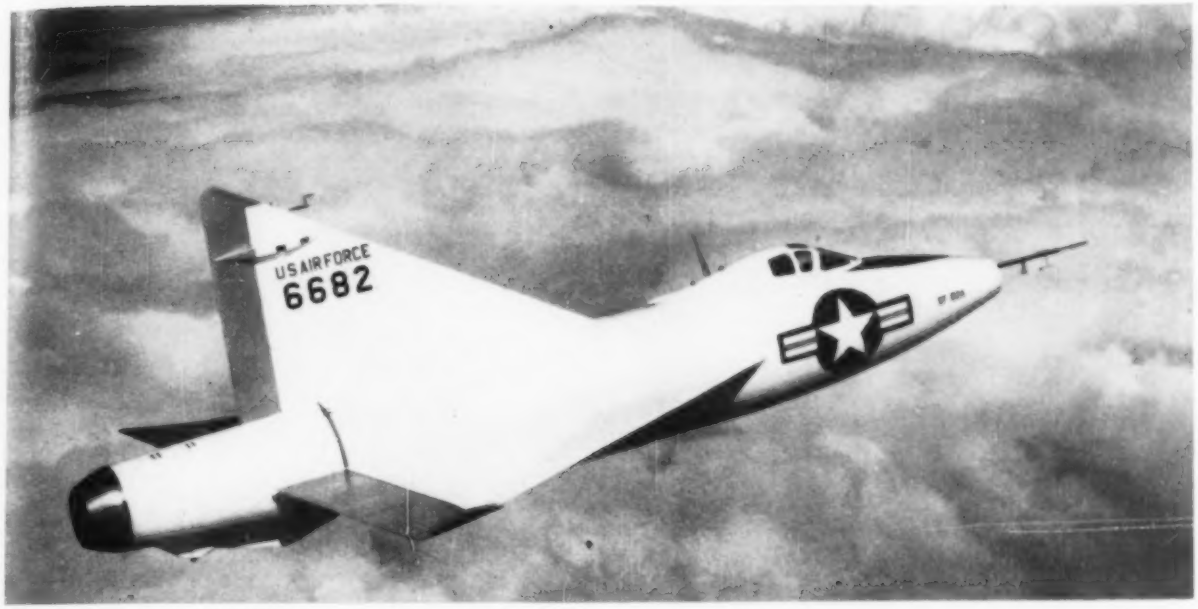
The project was organized by Dr. Phillip J. Rulon, ERC Director of Research and himself a veteran pilot. Briefly the problem was to learn scientifically from the aggregate experience of a representative cross-section of casual "instrument" pilots how CAA might better deal with regulations on the subject.

Four associates, all pilots, set up the procedure and the tools. A specially equipped *Navion* with a panel similar to the L-17B military version was the plane used. Radio included an LFR receiver and VHF transmitter.

Next step was to secure the cooperation of a group of pilots whose experience was within the range of the problem. Thirty-six New England and upstate New York instrument-rated, personal airplane pilots, each with more than six and less than 25 hours of instrument flight in the previous half-year, volunteered for the project.

Weather and poor visibility conditions were simulated by the use of amber plexiglass panels on the windshields and subject pilots wore blue goggles. Beside the volunteer on each flight was an ERC check pilot and observer. Recordings were made of all radio communications and of comments by the check pilot.

Check sheets used by the safety pilot and observer covered every physical motion and vocal action of the volunteer. Each of the 36 pilots engaged in the project flew three scored approaches to an instrument landing. All approaches began from a position aloft within 10-15 minutes flying time from a known leg of a selected radio range station. Volunteers were required to make their own normal radio contacts. (*Continued on page* 48)

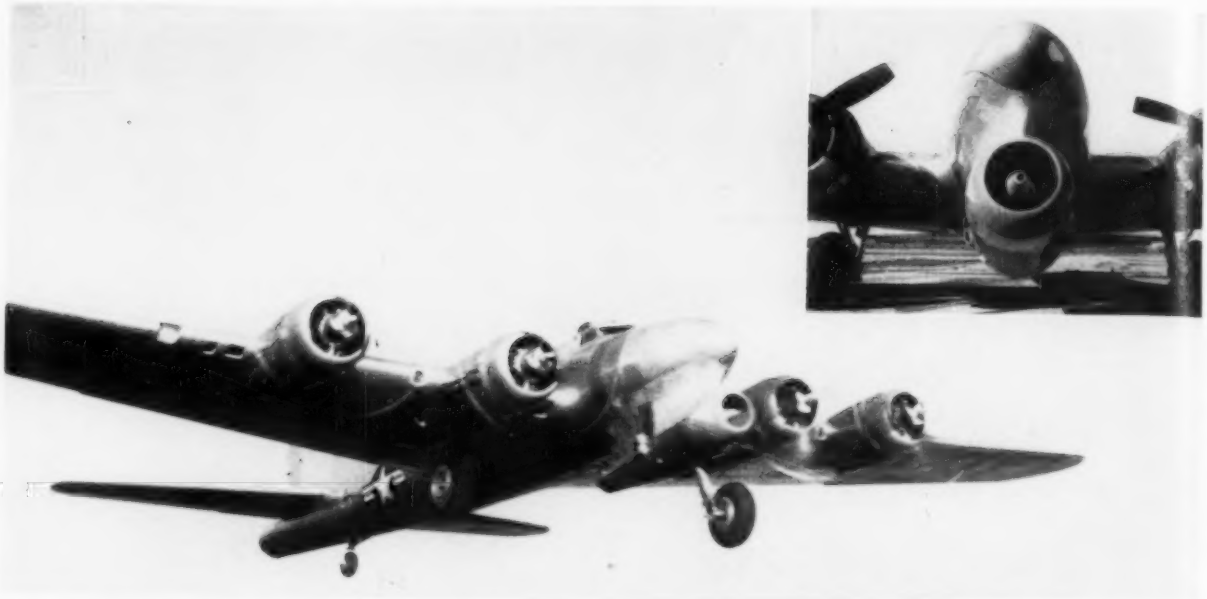


First photo release of the delta wing Convair XF-92A with afterburner (contained in the extended tail section) shows the speedy research ship climbing to altitude in an Air Force test flight at Edwards AFB, Calif. The afterburner adds substantially to the thrust of the plane's J-33-A-29 engine. This experimental plane was designed to test flight characteristics of the delta wing.

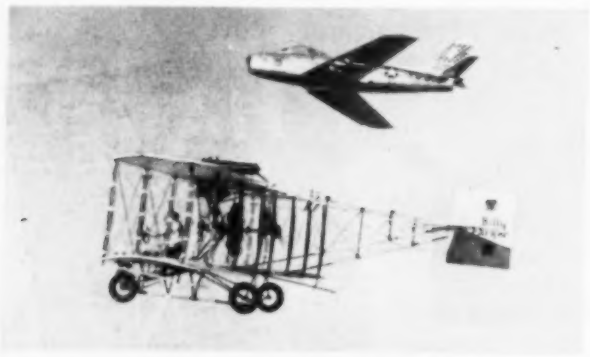
When a pilot in VF-62, Naval Air Station, Jacksonville, was unable to start his left jet engine by conventional methods, a second pilot taxied his McDonald *Banshee* in front of the first plane and turned his engines up full power. The resulting blast from the turbine set the engine of the back plane windmilling.

HAVE YOU SEEN?

The Piper *Twin-Stinson*, four-place light transport developed by Piper Aircraft for corporate and industrial flying, makes its camera debut. Flight tests are described as "successful," with no details on performance. The prototype model is powered by two Lycoming 125-hp engines. Production models will cost less than $25,000 and will go on sale in 1953. Test Pilot Jay Meyers is at the controls. At left are Rex Taylor of Piper's staff; Walter Jamouneau, chief engineer, and the designer, Fred Strickland.

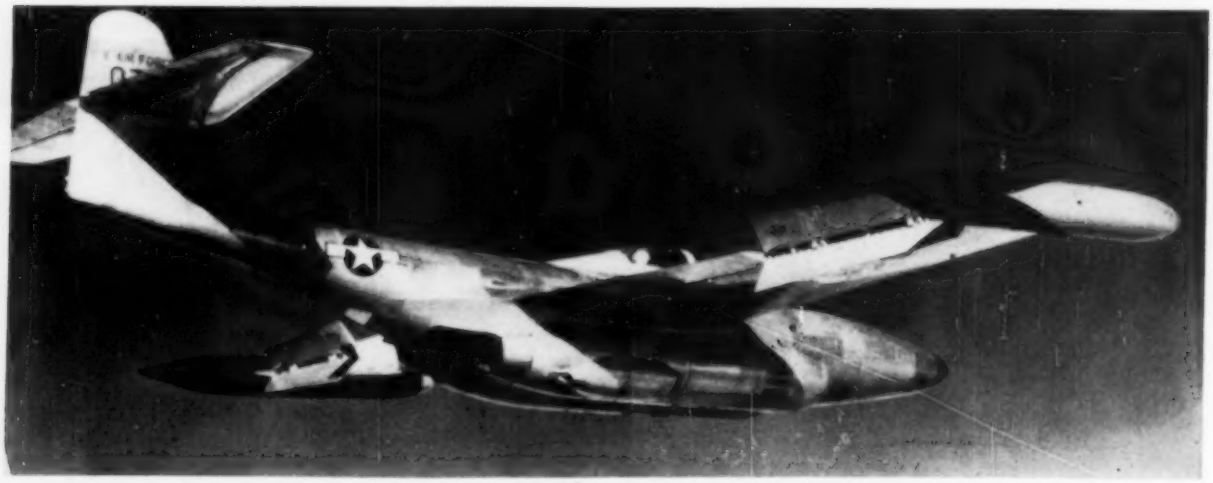


Flight test data on the Wright J-65 turbo-jet is obtained at the company's Caldwell-Wright Airport by mounting one on a modified B-17 "flying laboratory." The same plane was previously used to flight test Wright Turbo-Compound engines as well as turbo-props.



Forty years of air progress are glimpsed as a 670 mph F-86 *Sabre* jet flies past a 60 mph 1912 model pusher biplane. The air-conditioned pusher was built and flown by Billy Parker.

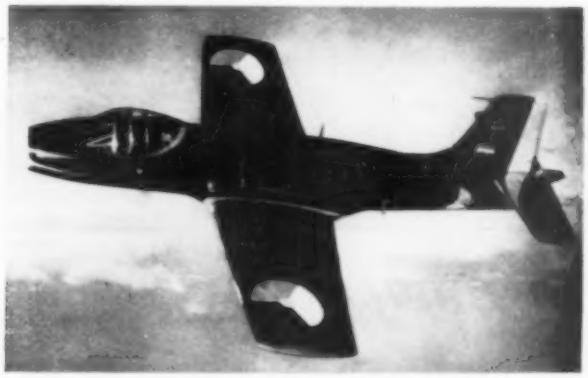
Czechoslovakia's first nationally designed helicopter is the XE-11, an orthodox machine with a single two-bladed main rotor, small anti-torque tail rotor and 75 hp Praga D engine.



The USAF Northrop *Scorpion* F-89 reveals its "speed brakes" in operation for the first time. Known as "decelerons," the double feature surfaces act as ailerons and also provide a wide braking area for the twin-jet, all weather interceptor. In normal flight the jaws are closed and the controls function as ordinary ailerons. In dives, the jaws open full to provide the braking effect. Test pilots have found that the brakes permit "express elevator" landings, bringing the plane down from 40,000 feet in record time.

The Regent *Rocket* 400, now in production at Regent Aircraft's Pearland, Texas, plant, promises transport speed with light plane economy and maneuverability. This five-place, low wing monoplane is powered by a 400 hp supercharged, horizontally opposed Lycoming. Fully retractable landing gear is hydraulically operated. Cruising speed at low altitudes is 240 and climbs to 260 at 14,000 feet, the plane's best cruising level. Landing and take-off are possible within 600 feet over a 50-foot obstacle. Cost: $25,000.

Charles F. and L. E. Frost of Sycamore, Ill., made this snow sled from an old Taylor Cub with a Continental A-40 engine. The sled revs up to 70 mph over a snowy 1,000-foot runway.



Holland's first nationally designed jet is the Fokker s.14. Soon to undergo trial for the Dutch Air Force, the s.14 is a 2-seater, driven by a 3,600-lb. thrust Derwent 9 turbojet.

The 45-ton French airliner Breguet S 761 No. 2 recently completed test flights at Toulouse. This huge two-decker has now gone into operation along the routes of Air Algerie.

For the few surviving lines, cargoes are exotic and business is booming . . .

AMONG THE FREIGHTERS

By JAMES M. WINCHESTER

ON THE EVENING of August 10, 1944, Lt. Edmond H. Mitchell, Jr., lead navigator for a group of India-based bombers, climbed into a B-29 and laid a course across some 2,000 miles of jungle and water to the island of Sumatra.

The mission—to smash the enemy-held oil refineries of Palembang.

On May 23, 1948, Mitchell arrived once more over Palembang, the navigator of a Seaboard and Western air-trader. His mission—you guessed it—to deliver 6½ tons of critical parts for restoration of the refineries his bombs had destroyed fours years earlier.

Nor are such dramatic incidents unusual in the life of the air freighters who today plow the skies of the earth "laden down with costly bales."

Following the war, the ready availability of long range cargo transports and a reservoir of globally trained airmen gave stimulus to the air freight industry. In the years of 1945 and '46 more than 150 non-scheduled and charter air freight lines began business.

Economic mortality among these opportunists was high. Only a handful survived. Tops among them in the international field are Transocean and Seaboard and Western. In the domestic field, Slick, Flying Tiger, and U. S. Airlines have gotten certificates.

In the meantime Seaboard and Western has purchased

Robert Prescott
President, The Flying Tiger Line

Arthur V. and Raymond A. Norden
Vice President and President,
Seaboard and Western Airlines

Orvis M. Nelson
President, Transocean Air Lines

five Super-Constellations at a cost of $10,000,000 and will put them into operation by early 1953. Last December, when this order was placed, Robert E. Gross of the Lockheed Aircraft Corporation said:

"The model, 1049-B, is the first Lockheed plane to be designed entirely as a commercial freighter. Its purchase by Seaboard and Western, largest all-freight carrier in the international field, marks a milestone in aviation history."

Cargoes of air freight have as great variety as cubic space and weight allow. Across the North Atlantic flows a steady stream of general merchandise—textiles, watches, machinery, instruments—and a vast number of articles related to the cooperation of free nations for relief and defense. In the Pacific, a new million-dollar industry has been built by air freighters flying flowers from Hawaii to the mainland.

In the domestic field, perishables, long the critical problem of growers from a marketing standpoint, are increasingly being shipped by air. Vine-ripened strawberries from California's Imperial Valley reach eastern breakfast tables overnight. The majority of big department stores now receive their suits, cloaks and dresses by air freight. Such merchandise travelling on hangers does not require re-pressing upon arrival. Merchants can carry lower inventories than formerly and air freight saves insurance.

Wallace Neth, traffic director of Seaboard and Western, reports that no request for cargo transportation now surprises him. Recently he answered the phone to find Henry Trefflich, New York's famous dealer in wild animals, on the other end of the wire.

"How about flying me in a load of elephants from Bangkok?" Trefflich inquired.

Without batting an eye, Neth quoted a price and within 60 seconds the deal was made. Trefflich then went on to other cargo matters and before Neth hung up the receiver he had agreed to fly an entire zoo from the Orient to New York.

Airplanes make real money only when they can get cargo both ways so it was up to Neth to dig up orders to be carried eastward. When the flight to Bangkok for the zoo pulled away from Idlewild it carried a 9,200 lb. rudder stock for Standard Vacuum Oil Company's tanker, Stanvac Calcutta, disabled in Singapore; 3,000 pounds of boiler tubes for an Anglo-Iranian tanker at Abadan, Iran; and 3,600 pounds of miscellaneous merchandise for Europe.

Loading at Bangkok for the trip homeward, Captain Joe Halsmer took aboard six elephants averaging 1,350 pounds each, 116 Java monkeys, four gibbons, four leopards, two rare Golden cats and a 23-foot python. The python was the least demanding passenger of the lot. He ate seven chickens before take-off and never woke up till he crawled off for customs at Idlewild.

Animals travel exceptionally well by air. Horses, thoroughbred cattle, sheep and other domesticated stock are routine cargo on all air freight lines. The Flying Tigers moved an entire herd of yearling cattle from Canada to South America. In one five-week period, Nathoo, the Aga Khan's Irish Derby winner, crossed the North Atlantic three times.

The oil industry is a prolific source of rush order business for air freight. Recently a tanker disabled in London received an 8,500-pound rotor at dockside within 30 hours after the master had cabled his problem to New York. Seaboard and Western estimates that in a dozen instances of such nature they have saved idle ship time in the amount of almost a million dollars.

Flying Tiger on one occasion flew a five-ton pump from Los Angeles to Arabia and saved weeks of idleness to a pipe-line installation. When the Arabian-American Oil Company moved headquarters from San Francisco to New York, the switch was accomplished altogether by air freight.

Transocean Air Lines, under contract to the U. S. Navy, provides passenger, mail and supply services for a chain of oil-drilling and exploration camps on the 35,000 square-mile petroleum reserve near Point Barrow, Alaska. (See "Airlift Over the Deep Freeze," FLYING, April.) Nor is this instance of backing up the military service a remote phenomenon. In countless instances when the chips are down the air freighters have gone to bat—Berlin, Korea and the Near East for example.

Lieut. Gen. Laurence Kuter, lately commanding Military Air Transport Service, has said, "Without the help of these air cargo lines, the job we've had to do in Berlin and Korea would have been inestimably harder, if not impossible."

Aside from current assignments on the Korean airlift, both Seaboard and Western and Transocean are flying many freight and passenger charters for other Army, Navy and Air Force units. Transocean, under Navy contract, runs an aerial supply route from Seattle, Washington, to bases in the Aleutians. (*Continued on page 48*)

S.O.P. for BLIMPS

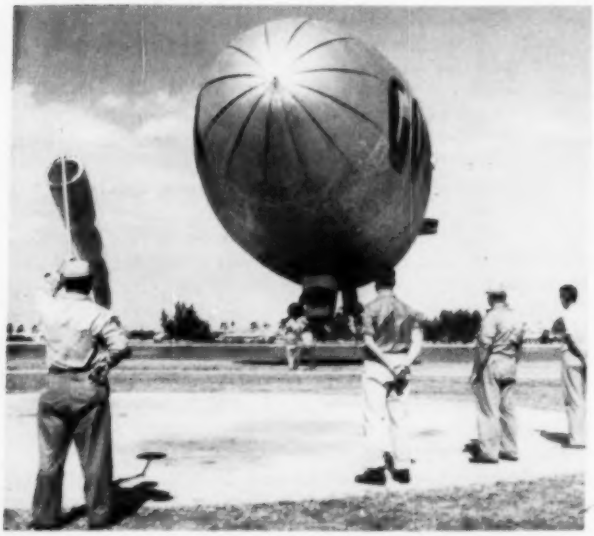
1. As the blimp comes in for a landing, Crew Chief Joe Nick holds aloft a windsock to indicate wind direction to the blimp pilot.

2. Here's a view of the air field from the car of the blimp as it comes down to land. Notice guide ropes hanging from nose.

Capt J. A. Boetner, who flies the blimp in these pictures, is the oldest active blimp pilot. His safety record since 1917 is simple: no accidents.

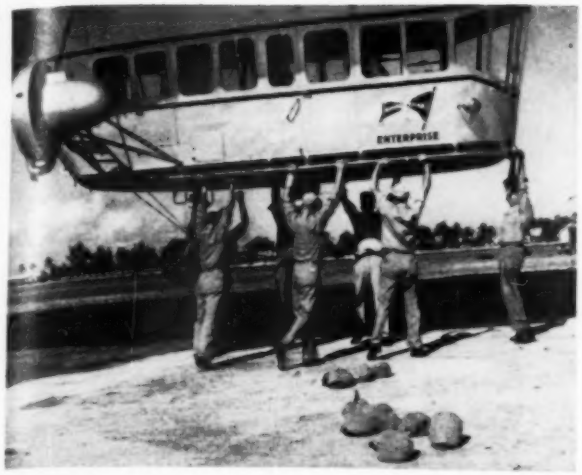
By CRAWFORD COX

Standard Operating Procedure for blimps is a strange sight for pilots of heavier-than-air craft to witness. It requires an airfield the size of a baseball diamond, a hand-held wind sock, a sure-eyed crew chief, and a strong-armed ground crew for the "bounce-down" and "lift-up" routine. The Goodyear blimp shown here operates passenger flights from a causeway field in Biscayne Bay between Miami and Miami Beach.



3. The blimp reaches the landing area and nose men reach for the guide ropes. The chief holds the sock until the wheel touches.

4. Showing evident enjoyment of her experience, Chinese passenger alights from the blimp after a sightseeing trip over Miami.



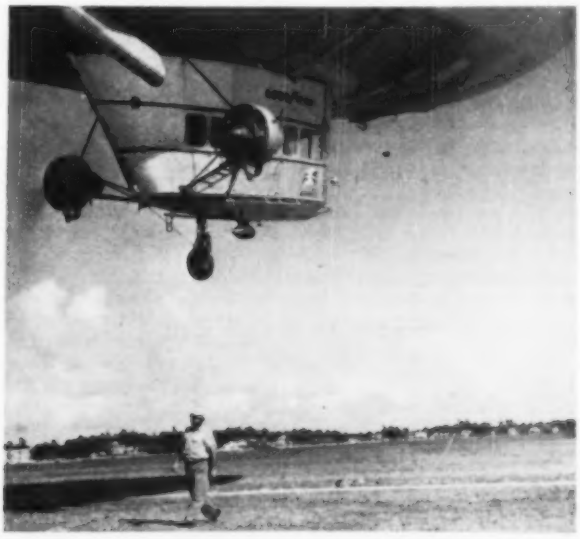
5. Muscle, skill and experience are nicely coordinated by crew as they respond to the command from their crew chief: "Lift!"

6. At the "Bounce Down!" order, the crew pushes down on the rail and the wheel takes up shock as blimp bounces back up.

7. For a "hands off" instant the blimp floats free. Sighting along the car, the crew chief detects the list in the ship, if any.

8. A list to starboard is found, so 25-pound shot bags are removed to lighten that side and thus restore the blimp to an even keel.

9. The blimp is now "bounced" again, and the nose is pushed up to correct angle. Note the exhaust as the engines are gunned.



10. The blimp is safely airborne and Crew Chief Joe Nick walks away, satisfied his crew has effected another perfect take-off.

(The editorial in March FLYING titled "What Had Happened to America's Youth?", has resulted in a deluge of letters to The Mailbox. All the letters show concern for the problem, many offer valuable suggestions, and all are too lengthy to be reprinted here in full. Brief excerpts from a few of these letters follow.—ED.)

YOUTH IN THE AIR AGE

The American youth who does hold a student or private pilot's license is stuck unless he also has some college education to back him. It seems that the best way to get ahead in this flying age is to go to college for two years and then go with the Air Force as a cadet. You get the best training and if you want to continue your flying when you come out you have the qualifications.

I was an eager beaver and didn't go to college. I got my private pilot's license and later bought my own airplane. I was on my way to a flying career until I was drafted. Whatever your experience as a civilian, the Air Force won't consider you unless you meet the qualifications. I don't believe its right to ignore a youth who thinks, talks and dreams of flying to be left out while someone with a little education is given a flying education, all paid.

PVT. JOHN KYRITSIS

Fort Lee, Va.

I am 21, married and have a wife and child. Our salary is just enough to support us. Have you done any shopping lately? Buy a steak, or four lamb chops. Just see what it costs you.

I want to be a commercial pilot. To fly has been my main ambition in life, but I can't afford it. It costs about $2,500 for a commercial pilot's license. I served three years in the USAF and I am not entitled to the G.I. Bill.

The American youth will always take a great interest in aviation. But aviation is now put out of reach of the average youth.

WILLIAM P. SMITH

Richmond Hill, N. Y.

I am 36 years old, married, no children. I have been a devoted airplane fan since about six years of age when my father sent me up for a ride with a friend. From then on my interest was supplemented by the yearly "shows" at the local state fair, and occasional visits by barnstormers and passenger-pleasure flight routiners. New fighters were the "showpiece" to us boys.

Today it is indeed a rare person who has *seen* a jet plane, of any type, in the air. They fly at such a height as to be comparable to a bird or above cloud cover. My sensitive ear usually alerts to jets flying over, I go galloping out to see them but I seldom ever "make it." If the public and the kids are to be interested in planes, they must know there is something worth the trouble to look at.

If every time jet planes or unusual jobs like the B-36 fly over a city they would circle two or three times so that people could get a look the word would probably begin to spread. "Say, have you seen those new jet planes!", or "Have you heard the sound of those Navy Banshees?" Few laymen realize what wonderful machines we have spawned in past years.

WILLIAM JOLLY

Chicago, Ill.

I am 15 and I have been airstruck for the past three years. In 1954 the number of student pilot licenses issued will be 48,001. Right now all I can do is ride in my father's *Navion* (Super 260) and read every book on airplanes I can.

Some day I want to fly a jet like Jacqueline Auriol and I hope I succeed. After all, women aren't as dumb as they look.

I hope you receive more letters like mine and I'm sure you will. Remember there is one air-minded youth of America who's with you all the way.

LOUISE SHARTLE

Chatham Hall
Chatham, Va.

I had a 1940 Aeronca *Chief* that needed re-covering and re-licensing plus a few hours work trimming the wings, etc. A local airport operator asked me to bring it to him for this work. I was to furnish *all* material—dope, cables, fabric, etc.

His mechanic went to work on the ship until he had the fabric on and two coats of dope and one of silver. Then he quit the airport. About a year later the airport operator got another A&E mechanic to finish my job. He worked four more months on the aircraft. I advanced him $175, hoping that would be about the total bill for his work but primarily to get him to hurry a bit. Finally the craft was finished and I got a bill for $922. I wouldn't pay it, as the plane on the market today is worth about $500. They sold the craft and I am out my airplane, my $175 advance, the cost of my materials and about $350 more.

The cost of the average light craft covering with all materials furnished should be about $550-600. If the owner furnishes the material, labor should not run over $300.

This, I believe is one of the major causes of scarcity of boys and girls becoming airplane owners. It's my lesson and I've learned it the hard way.

J. ROBERT WATTS

Herkimer, N. Y.

What is going to happen to America when Russia unleashes on us the Russian pilots in great hordes who are taking up flying from age 14 on up to 20? First they train in gliders and work on up into powered and faster planes. Will our Air Corps one day quietly tell us that Russia has a better training program?

It just doesn't make sense that we spend tax money to train a boy in carpentry, machine shop, metal shop, etc., and provide no flying for the boy when he is in high school.

Since "Korea," another million potential high school pilots, who should have had 30 hours at the local airport have been "lost." By now they have gotten over the desire to be a "fireman," "policeman" or "pilot." Their reasoning has told them the money is not there for the training they must undergo and the CAA requirements they must pass. So they are now either in the Army or Navy as recruits or in college studying to be doctors, lawyers, chemists or government officials.

GEORGE L. SETMAN

Quakertown, Pa.

Twenty-five years ago a time chiseler who wanted to wash 40 feet of Jenny wings on two or three planes could hope to get 20 or 30 minutes time in the air. The important thing wasn't that he got the air time, but that he was welcome around the field. I know. I was one such boy.

We all know such things have passed with the coming of wage/hour laws and minimum age laws. However the school system, in cooperation with the operator and manufacturer could work out a program that would be both profitable and palatable to all.

JAMES A. RAPP

Glendale, Calif.

I appreciate very much your article. It will certainly open the eye of government people. I am seeing this same thing happening here in Brazil.

COMMANDANTE ALVARES

Sao Paulo, Brazil

I have a question for the Mailbox. I am 13 years old and extremely interested in aviation. I have a file box in which I keep over 250 air force base and naval air station and similar sources' addresses. I am a school reporter with a column about aviation. Am I too interested?

ROBERT LEIDOWITZ

Compton, Calif.

PLANE FAX

Quick picture of
BRADLEY FIELD
Boise, Idaho

3000' graveled runway, lighted on request . . . free tie-down . . . CAA weather and communications . . . 'round the clock repairs and maintenance . . . cafe and modern skytel on field . . . complete Standard Aviation Service.

Skyport for wilderness flyers!

J. I. Mayes, manager of Airport Service Company at Bradley Field, takes justifiable pride in the fact that since 1948 this field has held the Haire Trophy for outstanding achievement among community airparks in the United States. He tells this story:

"Here at Bradley, we're a hopping off place for Idaho's huge Wilderness Areas. And we fly in to mines, patrol pipe and power lines, serve farm flying needs, and maintain an active flying school. These varied activities mean we encounter plenty of rugged flying, and demand that our engines always be in top shape. That's one reason we use Chevron 80/87 Aviation Gasoline and RPM Aviation Oil. We know they're tops for light plane engines.

"Mountain flying, particularly, calls for an all-weather high power performance in aviation products. With Chevron '80/87' we've ended take-off knocking and pre-ignition—big points when you're taking off from a small mountain meadow or one of the wilderness landing strips. And, we've doubled the flying hours between complete overhauls since using RPM Aviation Oil in our planes—with a consequent saving of hundreds of dollars for us."

T. M.'S "RPM," "CHEVRON," REG. U.S. PAT. OFF.

TIP OF THE MONTH

Always keep your plane washed down, especially in dusty spring and summer flying. This will insure complete freedom in control pulley operations—an important safety factor in small plane flying.

CHEVRON AVIATION GASOLINE

RPM AVIATION OIL

STANDARD OIL COMPANY OF CALIFORNIA

Flying Diesel

(*Continued from page 29*)

Kirschler leveled off at 1,000 feet and circled the area at an engine cruising speed of 2,350 revolutions per minute. Occasionally some fuel smoke drifted behind the plane but this was attributed to the fact that the experimental engine was very worn and also because the pilot had been instructed to try some experimental "mixing" in the injectors. The exhaust of the new diesel engines off the proposed production lines will be clear, according to Barton.

Though Kirschler, a veteran light plane pilot, made a perfect approach, he said that there was plenty of power available in case of emergency. The wheels of the Taylorcraft touched down approximately 20 minutes after take-off. As soon as the engine was stopped in front of the hangar the remaining fuel in the tank was drained and taken to a special check room where it was found that fuel consumption on this test was 4.4 gallons per hour. The fuel used for this initial flight test was kerosene of 43 gravity which is readily available anywhere. In fuel consumption tests on the West Coast using 33 gravity diesel fuel the remarkable record of 3.2 gallons per hour was made. The designers are constantly making fuel tests on diesel fuel, kerosene, jet fuel and even with common gas oil.

Simplified Panel

There are no special gauges required on the diesel instrument panel. In fact, there are less engine instruments needed than for a gasoline engine, a fact which the average pilot will appreciate.

A Bosch 4-A fuel injection pump is used to supply an injection pressure of 1,200 to 1,500 pounds per square inch. The specially designed injection nozzles have three spray holes; two .008 of an inch in diameter and one .012 of an inch. An important difference in the diesel engine is that upon the first firing stroke a precisely measured amount of fuel is sprayed into the chamber and atomized at the 1,500 pound per square inch pressure. There isn't any waiting for the suction stroke of the pistons to draw a gasoline-air mixture into the combustion chamber through the carburetor as in the case of the gasoline engine. From the first turn of the diesel engine crankshaft the fuel-air mixture is available.

Funnel for Air

An air scoop, shaped like a funnel, is placed under the engine directly behind the propeller to furnish the required amount of air for the fuel-air mixture. Because of its shape and location there is always an abundant supply of air at normal altitudes to provide the 30 to 1 ratio.

One of the most important difficulties that Barton and his associates had to overcome before the diesel principle could be considered for an aircraft was to find a way to lower the firing pressure in the combustion chamber. Skeptics insisted that the cast aluminum cylinder heads would be blown off under the high pressure of diesel operation. However, this didn't discourage the designers from seeking a method of reducing the pressure and finally they accomplished it by an ingenious arrangement of a hollow air cell placed in the combustion chamber opposite the fuel injection nozzle. By placing it at a critical angle so that no fuel can enter the cell but part of the compressed air can—later to be released as the piston starts down—the firing pressure was "softened" and the firing period was prolonged, resulting in a smoother running engine.

In tests taken by engineers of the California Institute of Technology it was discovered that the compression end pressure was the same as the firing pressure. Ordinarily in such a test the firing pressure of a conventional diesel engine is much greater than the end pressure. This "softening" of the firing pressure has resulted in an increase of the compression ratio from 7 to 1 to the present 14 to 1 ratio. This one development is the secret of adapting the diesel principle so that it is suitable for a light-weight aircraft engine.

The importance of economy of operation and maintenance to users of light aircraft can't be over-emphasized. The kerosene fuel used on the initial flight cost approximately one half the price of aviation gasoline. This fact, coupled with the improved fuel consumption record, result in substantial savings.

The elimination of the prolonged warming up period before take-off also means less fuel consumption. This fact can be appreciated more when the time spent in ground operation over a long period is totaled. Obviously this also means less wear and tear of the engine, helping to lower maintenance costs.

Cheaper, Safer

Leaving out the ignition system naturally does away with all maintenance costs formerly attributed to it. Spark plugs, magnetos, etc., are not present to cause the many inconveniences—and sometimes serious troubles—that they can cause in gasoline engines. This leads to safer flight because one potential source of trouble is eliminated.

After the diesel engine is in common use the steps that the CAA will take in regard to their inspection requirements can't be determined but indications are that the inspections will take less time as there will be fewer parts to check. This should either mean lower costs or more time between inspections.

One important source of radio interference is entirely eliminated by the omission of the electrical ignition system. This is another safety factor since the pilot can get better reception of weather reports, landing instructions, etc., over his radio while in flight.

By using kerosene or diesel fuel the fire hazard of gasoline is greatly reduced leading to the possibility of lower insurance costs.

The plane used on the test was a Taylorcraft built to specifications furnished by the Army for a liaison plane. It was a two-place, tandem seat job with a dry weight of 1,034 pounds; the weight of the pilot and fuel added about 300 pounds to the take-off weight.

As test pilot Ray Kirschler said, "I had an empty feeling in the pit of my stomach when I first looked at that engine. No spark plugs, no wires, no magnetos. It seemed as though something was missing." But that first flight convinced him and the rest of those present that nothing was missing. Instead, something had been added to the history of light plane power plant development—diesel power with wings. END

Single engine . . . must sacrifice . . . never flown more than 700 mph . . .

"FATHER AND SONS ARE AOPA'ERS!"

IVAN M. ANNENBERG
AOPA Member A22138

SAYS . . .

"May I say at this time that the most valuable adjunct my membership in your Association brings is the confidential letters which you send out. I find them not only interesting, but most informative. I am sure that many of the other AOPA Members look forward to receiving them as much as I do. As a result of my enjoyable association with AOPA, my son Robert Annenberg who holds a private license, joined AOPA as Member A51649. My other son, Lt. j.g. Ted Annenberg, USN is a naval pilot on patrol duty in the Philippines. He too, has signified his intentions to join AOPA."

AOPA Member Ivan M. Annenberg who holds a commercial ticket, has been flying for over 25 years. His aviation activities started in 1927 when he soloed an OX-5 Waco. During the War, Ivan served four years as an Air Force captain. Through the years he has owned many airplanes, among them an Ercoupe and a Twin Cessna. He now owns a Beechcraft Bonanza in which he has logged over 1200 hours on business and pleasure trips. His job?—Circulation Director of the New York NEWS, the newspaper having the largest circulation, daily and Sunday, in America.

Take advantage of AOPA's many benefits. AOPA's active membership plan now gives more and better service to active pilots than ever before.

- Brand new lapel insignia and credentials!
- Aid of the Washington staff of AOPA in your personal flying problems, CAA licenses, regulations, legal difficulties, documents, employment, etc. Specialized services including map subscription service, aircraft title search, flight routing, etc.
- A $700.00 personal accident policy (flying only) issued by AMERICO to all ***active*** members without cost. Increases $100.00 each year your membership remains in force until principal sum reaches $1,000.
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Aircraft Owners and Pilots Association
National Headquarters, Dept. F-652
Post Office Box 5960
Washington 14, D. C.

I would like to apply for membership in AOPA as indicated.

I first soloed an airplane at ..... in the year .....

I own aircraft ..... Make ..... Model .....

Name .....
(please print)

Address .....

City ..... State .....

Pilot License Number ..... Ratings .....

Signature .....

($1.80 of each year's dues are for my subscription to the AOPA edition of *FLYING*)

☐ I desire ***Active (Full) Membership*** in AOPA. Enclosed find my check or money order for $10.

IMPORTANT

I understand that I am to receive a $700.00 flying-only personal accident insurance certificate issued by American Mercury Insurance Company. (Restricted to the U.S., its possessions, Canada and Mexico.) Please record the following person as my beneficiary for this insurance:

....
Name of Beneficiary Relationship

REGULAR (LIMITED) PILOT MEMBERSHIP

for those pilots who do not require the full services of the AOPA due to their flying inactivity, military service or other circumstance, ***Regular Membership*** is available at the low rate of $5.00 per year. This plan is ideal for those pilots whose servicing requirements are limited but who wish to support and be affiliated with AOPA. Benefits are limited. Member will receive standard lapel pin, membership card, the AOPA edition of FLYING magazine each month, and may participate in insurance available through AMERICO and the Minnesota Mutual Life Plan. (Automatic personal accident policy issued at no cost to ***active members*** is not available to regular members, nor is the AOPA Washington Newsletter.)

CIVIL AIR PATROL

WING TALK

HEAVY SKED AHEAD

CAPatrol will be busy this summer. Busier, probably, than in any previous season. Going into final plans, the statistical breakdown shows an organization and facilities capable of handling the nearing "CAP season." The "current situation" shows 43,003 cadets in 1613 units (52 wings, 169 groups and 1392 squadrons), 13,429 pilots, 1970 observers, 5730 airplanes and 34,467 senior members as of the first of the year.

Main points on the summer calendar are:

June 1—CAP cadet encampments begin, run through August. More than 40 planned.

July 23-Aug. 26—1st Annual National Aviation Education Workshop, University of Colorado.

July 24—Participants for annual International Cadet Exchange assemble at Washington, D. C., for briefing previous to movements to foreign countries.

Aug. 2—CAP National Drill Competition. Site to be named later.

Aug. 23-26—Exchange cadets return from overseas.

Aug. 30—International Drill Competition. U.S. site to be named later.

Additionally, there will be several events in which CAP organizations will have a prominent role, such as the Texas wing in the National Soaring Meet at Grand Prairie, and the Michigan wing in the National Air Race program at Detroit.

A HAND ACROSS THE BORDER

It was learned by CAP National Headquarters at presstime that the North Dakota wing would sponsor a teacher from Mexico to the U. of Colorado workshop. (See above)

NOT TOO YOUNG AT ALL

OAKLAND, Calif.—Convinced that the air age is here to stay, two Oakland teen age students are doing something about it by putting in flight time at Oakland Municipal Airport.

Jimmy Farnsworth, 14, and Margaret Rennie, 15, are flying Cessna 120's under the tutelage of Wally Thompson, Oakland flying instructor.

Jimmy, who lives at 544-63rd Street, claims to be a failure at building model airplanes, a hobby of most boys his age, but is proving to be a whiz at handling the real thing.

Margaret, who resides at 232 Ghormley Avenue, became interested in learning to fly when she joined Civil Air Patrol, as a member of the Oakland Squadron. In 1951, she was one of five girls from this area to participate in the state-wide summer cadet encampment at McClelland Air Force Base at Sacramento. After being given orientation rides in a C-47 and manipulating a Link Trainer, she decided to take flying lessons and is now on her way towards proving age is no barrier to aviation accomplishment.

The youngsters' parents approve of Jimmy's and Margaret's desire to fly. As far as danger goes, Jimmy's mother worries more about him when he goes fishing than when he is flying, and Margaret's father would much rather see her flying than driving a car.

Neither of the youthful aviators can solo until they are 16, according to law, but both are eagerly looking forward to the day when they can take the Cessna up by themselves.

Cadet encampments have their light moments. Here a CAP cadet dances with a Macon, Ga., belle during the Robins AFB encampment program. Just goes to show that some cadets are rather little and some gals have had more time to grow.

CAP Cadet Dan Boone went to the Hickam AF Base in Hawaii, minus his usual coonskin cap, and found himself this fine headpiece. With the ever-present uke, the descendant of the original D. Boone serenades pretty Jean Addington of Honolulu's CAP squadron. The occasion was last year's CAP cadet encampment.

THE CONGRESSIONAL DINNER

The United States Congress, the President and a host of other dignitaries honored Civil Air Patrol May 14 at the CAP Congressional Dinner held at Washington's Shoreham Hotel. The occasion was CAP's annual "report to Congress" on 1951 activities, delivered by Maj. Gen. Lucas V. Beau, National Commander. General Beau's address highlighted 1951 as a year of expansion—CAP's tenth anniversary year—in which the organization gained much new stature with the public and the "mother organization," the U.S. Air Force.

Highlighting the program were the presentation of a founder's scroll to Gill Robb Wilson, editor and publisher of this magazine, and the address made by one of the 52 cadets who attended with his wing commander. The National Executive Board, whose chairman is Gen. Carl A. Spaatz, and the 52 wing commanders held joint and separate conferences during the three-day meet in Washington.

☆ FLAT SPINS ☆

Rudolph (Rudy) Payahsape is a full-blooded Indian but he doesn't don war paint and hop on his horse when he goes into action. Stationed at Westover Field, Mass., he dons flying togs and hops into his Grumman SA-16 fighter.

Science hasn't yet made ingenuity obsolete. A pilot used a curtain rod, borrowed from a passenger, to force a landing wheel into position before he could come in for a safe landing at Lae, New Guinea.

For a scene in the movie, "The Las Vegas Story," a two-seat helicopter, piloted by Joseph Seward, was flown through a hangar—with only three feet of clearance at any point.

The longest telegram in Western Union annals, 680 feet long (the Washington Monument is 500 feet high), was addressed to President Truman by 31,000 citizens of Schuylkill County, Pa., suggesting that a proposed air depot be built in their county rather than in nearby Lancaster County.

Col. Paul Tibbets, who dropped the atomic bomb on Hiroshima, made history of another sort when he advised movie producers who plan to film his exploits that he had no time for romance while preparing for the big flight and he ruled that notion out of the movie.

Howard Bothell of Seattle was thrown out of his amphibian plane while practicing landings in Puget Sound. While the plane was still cutting capers across the water, he was rescued by the Coast Guard. Not content to wait for the plane to run out of gas, Bothell hopped into a skiff, jumped from the skiff aboard the moving plane and recaptured the pesky thing.

More than 1,000 paratroopers made a mass jump during cold winter maneuvers near Camp Drum, N. Y. On the ground they found mess sergeants ready with hot coffee—served from field kitchens that had also been parachuted from the sky.

An Atlanta department store received an order for five Confederate caps from five U. S. Air Force officers in Korea. Attached by way of payment was a $10 confederate bill.

Filmed in cooperation with the Air Force, "Top of the World" will be a feature picture about polar aviation. The cast and crew will be transported to Alaska and most of the film will be shot between Fairbanks and the polar ice cap.

A new Air Force camera takes such clear pictures that in a picture taken nine miles up two golfers are plainly visible—and so are their golf balls.

—Harold Helfer.

How to beat the 'SQUEEZE' of the high cost of living!

You can't control the *value* of the dollars you receive: but you can control the *number* of dollars you are paid!

Today, particularly, you must make more money than ever before because you can no longer depend on small yearly increases to maintain your standard of living. But, regardless of economic conditions, a clerk will always receive a clerk's salary; he can expect little more than minor raises until he qualifies for more responsible work.

The only way to "beat the squeeze"—to keep ahead of sky-rocketing costs—is simply this: *Lift yourself out of your present class into the class above!*

Send For Free Copy of "FORGING AHEAD IN BUSINESS"

"Forging Ahead in Business" is an inspiring 64-page book that explains how you can bridge the gap between your present job and a better one—how you can *prepare now* to meet the challenge of future opportunities. It points the way to new and exciting avenues of achievement. And it outlines the Alexander Hamilton Institute's executive-training course which has sparked thousands of men to highly-paid positions.

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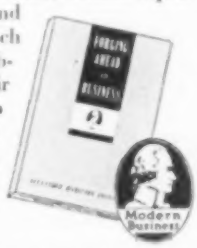

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CAN YOU SPOT THEM?

1 2 3 4 5

(1) Ilyushin Il-18 (Russian), (2) Two Lockheed F-80 Shooting Star fighter-bombers and a Douglas RB-26 Invader (both U.S.), (3) Northrop F-89 Scorpions (U.S.), (4) Lockheed F-94 fighter interceptors (U.S.), (5) YAK-3 (Russian).

Triple Threat Orphan

(Continued from page 25)

From a tiny airstrip at Koto-ri, a few miles south of the reservoir, the squadron was engaged in evacuating wounded both in OY lightplanes and helicopters. Then several World War II Grumman *Avenger* torpedo planes were borrowed from the Navy to speed up the operation. Capt. Alfred McCaleb of Green Cove Springs, Fla., an observation pilot who hadn't flown the *Avenger* in several years, volunteered to fly one of the planes onto the little strip and take out wounded.

Flying from dawn until after dark, he evacuated 84 men in 11 trips. The field was so small that a landing signal officer had to be stationed at the end of the runway to guide the pilots in with colored paddles, carrier-style. The pilot detailed to act as LSO was Capt. Malcomb G. (Monk) Moncrief of Selma, Ala., who was "drafted" from a Marine fighter squadron to direct the landings.

Several months later VMO-6 had an excellent chance to repay Capt. Moncrief's favor. While on a fighter strike against enemy vehicle concentrations along the east coast of North Korea, his plane was set on fire by direct hits from anti-aircraft. He bailed out of the flaming *Corsair* and landed near the AA battery which had shot him down. Immediately shedding his chute, Moncrief raced through heavy brush up a mountain, with a Communist search party bearing down on him.

Meanwhile a VMO-6 Sikorsky helicopter piloted by Capt. Dwain Redalen of Lanesboro, Minn., was on its way to the area from a base some 60 miles south. When he arrived on the scene, Capt. Redalen spotted the downed flyer in a tree on the very peak of the mountain.

Tacking Tactic

Strong wind currents made it impossible to drop straight down on the peak, so he flew slowly across it several times before he succeeded in getting the cable hoist close enough for Moncrief to catch.

Just as the downed flyer secured the sling around his chest, the Reds broke from the brush a few hundred feet down the slope and began firing. Redalen immediately rose to an altitude of 3,000 feet with Moncrief dangling below on the hoist.

Out of range of the Red rifles, the crew chief "reeled in" the winch until the dangling captain could crawl into the plane. Then Redalen headed for the coast to find a U.N. ship, since the 'copter was rapidly running out of fuel.

Over the coast with only five minutes of gas remaining and no ship in sight, he began making preparations to ditch the Sikorsky in the shark-infested water. In the nick of time, however, a *Corsair* pilot who was flying cover on the 'copter at a higher altitude spotted a Navy LST, and radioed for a landing space to be cleared on the deck.

Auld Lang Syne

Safely down aboard the vessel just as the fuel gave out, rescued and rescuer had a chace to relax, say hello, and get reacquainted. Captains Redalen and Moncrief had flown together in the Pacific during World War II, but hadn't seen each other since then until the fighter pilot was pulled into the 'copter over North Korea.

"Quite a shock," said Redalen, "seeing my old buddy crawl into the 'copter with bullets whizzing by from below. I didn't know who I was picking up until then."

"You had a shock?" countered Moncrief. "What do you suppose I felt like, hanging there watching those Reds bang away?"

In the course of its action-crammed 15-month combat tour, VMO-6 has received the plaudits of the highest U.N. commanders in the area. But the compliment which made the biggest impression on the unit was paid it during the evacuation of the Hungnam defense perimeter in mid-December, 1950.

Mighty Errand Boy

A telephone call was received by Maj. Vincent J. Gottschalk of Pontiac, Mich., a lightplane pilot and Silver Star winner who was then commanding officer. He was instructed to move his helicopters to a dock in Hungnam harbor, where they would be picked up by a ship and ferried out.

When the amazed "whirley-bird" pilots landed at the dock, they found that the "ferry boat" assigned to move them was the pride of the U. S. fleet, the mighty *Missouri!*

"Smug expressions were the order of the day," recalled one flyer with a smile. "After all, it isn't every helicopter that gets chauffeured around by the biggest battleship in the biggest fleet in the world!"

In the spring of 1951, the gallant old Convair OY liaison planes, which had virtually flown off their wings in combat, were replaced by the Cessna L-19, an all-metal observation plane. Pilots and ground crewmen alike paid glowing tribute to the OY, an unsung airplane which played a major role in Korea.

Mobility Essential

The nature of the squadron's operations demands that it be based near the headquarters of the 1st Marine Division. Since it supports that unit, VMO-6 has moved almost every time the Division command post has moved. Of all the Marine aviation units in Korea, VMO-6 is the most mobile and the most independent. Few other squadrons have had truck convoys ambushed, frequent sniper trouble, infiltraters, and similar difficulties which normally plague only front-line troops.

Few other aviation units, if any, can claim to have done so much work of so many different types as the little observation squadron. Orphaned from parent units and lacking a permanent base, the outfit has flown from country roads, city streets, railroad loading platforms, rice paddies, and full-fledged airfields. They've operated in wind, snow and rain with inadequate instruments and underpowered, over-flown aircraft. Mechanics have worked wonders with baling wire and makeshift parts, laboring around the clock under conditions which would amaze a Stateside technician.

Through it all, the squadron's morale has remained high. They know the job they have to do, and are proud of the way they've done it. They know the problems that face them, and are confident they can be solved. END

ALONG the AIRWAYS

GOB COMMANDER

Edward F. Spencer of Chicago, aviation machinist's mate first class in the Navy, has been designated a plane commander in NATS Squadron Five at Moffett Field, Calif. Spence is believed to be the first bluejacket below the rank of chief petty officer to earn the right to occupy the left-hand seat in the cockpit of the Navy's R5D aircraft.

Edward F. Spencer

* * *

FLYING GOES COLLEGIATE

The University of Tennessee at Knoxville inaugurates this spring its new Aviation Flight Training Program. The course includes ground training in civil air regs, radio procedure, navigation, weather, aircraft and engines, plus flight training in four stages of 20 hours each. Flight instruction is paid for on the basis of hours flown, while ground courses are part of the regular school curriculum. Full scholastic credit is given for the aviation studies, which are offered by the University's transportation department.

* * *

AIR SCHOLARSHIP

Just now the south seems to be holding the spotlight in the field of air education. Delta Air Lines has established scholarship funds at several southern universities to assist students of aeronautics. First of the scholarships to be awarded at the University of Georgia in Atlanta went to William Douglas Epps, son of the late Ben Epps, a garage owner of Athens, Ga., who built and flew his own monoplane in 1907 and is regarded as one of the true pioneers of the industry.

MODEL REPORT

Frank S. Pittenger, manager of Muskegon County Airport in Michigan, is taking bows for his annual report on the airport in 1951, its 24th year of operation. The mimeographed report, enlivened by numerous sketches, has been reproduced by the American Association of Airport Executives and mailed to all of its members as a good example.

* * *

TIGER REUNION

A reunion of the original "Flying Tigers," the American volunteer airmen who won fame in the China war, is scheduled for June 27-29 in Hollywood, Calif. Dick Rossi, now a captain with the Flying Tiger Line, is chairman of the event, which comes 10 years after the disbanding of the famous outfit.

* * *

ID CARDS ESSENTIAL

CAA Administrator Charles F. Horne reminds all airmen—pilots, mechanics and others—that they must carry their identification cards on their persons at all times while performing airmen duties. The special identification card, now required in addition to the regular airman's and medical certificates, has been issued by the CAB at the request of the military.

* * *

AIRWAYS SHORTS

The *Aerocar*, hailed as the autoplane of the future, was demonstrated on the ground and aloft by its inventor, Moulton "Moe" Taylor of Longview, Wash., at Oakland Municipal Airport in Calif.

Seaboard and Western Airlines claims a DC-4 freight record on the strength of 16,014 pounds of cargo carried on a single flight between Frankfurt, Germany and New York.

W. A. Patterson, United Air Lines president, disclosed in a recent speech that his airline figures the cost of training a co-pilot at $2,315 per man. Stewardess training costs $309 per glamour gal.

TWA enters the amazing statistics sweepstakes with a report that its cargo business has increased 3,000 per cent in the past 11 years.

Arthur F. Kelly, vice president-sales for Western Air Lines, has won the "Man of the Year" laurels bestowed by the California Wing of the Air Force Association.

Harold Crary, United Air Lines v.p., forecast that 25,000,000 passengers will fly the nation's scheduled airlines this year.

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High School Attended Graduated Yes ☐ No ☐

F-6 Check one: ☐ Veteran ☐ Non-Veteran

Among The Freighters

(Continued from page 37)

Both Flying Tiger and Transocean, as operators of their own maintenance and repair shops, also do overhaul for Air Force and Navy.

Of the top cargo airlines, only S.&W. classifies itself as exclusively a freight carrier. Transocean and Flying Tiger derive much of their revenue from charter passenger projects, supplementary services—such as Transocean's assignment to teach flying to 60 Indonesian cadets—and from ground services to government and lay operators.

Young Veterans

Raymond Norden, 34-year-old President of S.&W., was an ATC pilot in the last war. Meet him for the first time and you wonder if he's old enough to shave. His brother, Arthur, two years older but just as youthful looking, is the line's Executive Vice-President and Treasurer. He's also an ex-ATC pilot, a veteran of "The Hump" and a specialist on flying safety. When S.&W. began business in May, 1947, they had one DC-4. Now they have eight.

The heads of Transocean and Flying Tigers are older than the Norden boys. Robert Prescott, one-time ace of the Flying Tiger fighters under General Chenault, heads this company. From an interim operation, the Tigers, in less than a year after being awarded U.S. air-freight route No. 100, expanded their schedules and quadrupled their plane fleet from six to 24 twin and four-engined craft. This year to date they are doing business at a rate 10 times that of their first year of operation.

Orvis M. Nelson, a former United Airlines pilot and ATC flyer, is president of Transocean. Organized in California in 1946, TALOA's C-54's are familiar around the globe. This company has concentrated on supplementary services more than have the other freight carriers.

China Ferry

TALOA's first big break came when Nelson landed the job of ferrying 150 surplus C-46's across the Pacific to China. Not a plane was lost during a million-and-a-half miles of over-water flying. Helping foreign air carriers has also assisted Transocean in staying in the black. When Philippine Airlines was organized, Transocean set it up and operated it for two years under contract. It also helped Pak-Air Ltd. of Pakistan, to establish its international services and more recently did likewise for Air Djibouti in French Somaliland.

As air freight grows in volume, the problem of handling increases. One of the biggest current headaches is the timing of flights carrying animals to arrive in the United States when inspectors from the Bureau of Animal Husbandry are on duty.

Another problem, due to the numerous clearances necessary, is the transportation of explosives. So much paper work is involved that one airline has set a minimum fee of $5,000 to carry explosives.

Regardless of problems, air freight is in business to stay. It has plenty to sell. As Raymond Norden recently told a symposium at Duke University Law School:

"Advent of the long range transport lifting a substantial payload presented the first opportunity in a hundred years to accelerate delivery of merchandise across water barriers. Air freight reduces the time to one tenth. Our economic advantages are unparalleled and unlimited."

END

Accidents That Haven't Happened . . .

There are three kinds of accidents: accidents that have happened, accidents getting ready to happen, and accidents not going to happen. If we rear back and do some thinking, we can change most accidents getting ready to happen into accidents not going to happen. The best kind of accident investigations are made before the accident. This is an accident that hasn't happened—yet.

I have a Dizzy Six buckled on and I am coming in to land, full of the ship's cookies and optimism, and I level out and touch her down as soft as a whisper. Then I push the brake pedals. Nothing happens. So I say to myself, "Well, well, I wonder what's cookin', or rather what's going to be cookin' pretty quick if I don't figure this one out pretty quick." Thus stimulated—I have tremendous will power—I begin to think and right away I am aware of the fact that my brakes have failed.

I do not ponder why, that will wait. I reach avidly for the air brake handle and I give it a pull with no little lust, one of those lusty pulls, you know. But nothing happens. Why? Yes, why?

Well, I look at the handle and sure enough there is a copper wire securing the handle in the Off position. Of course I could have cut this wire before coming in to land but I didn't know that I was going to need the air brakes; the air brakes are for emergencies and most emergencies come unexpectedly.

Anyhow, unperturbed, I lean over and speak to the Flight Engineer, the man who acts as buffer between the stewardess and the fellow who is doing the flying, and I ask him to go into his bag and dig up a pair of wire cutting pliers at his earliest convenience. This he does and I then, without loss of time, shear the copper wire in two. This wire, by the way, is called a safety wire, showing that not all of the humorists are in television.

Having severed the wire, I reach for the air brake handle and give it another pull with lust. The brakes take hold. It is a good thing that the brakes do take hold at this point because we have been sailing down the runway at about 100 miles per hour all of this time and so we have used up a good deal of it, as you can imagine.

So this is an accident that was changed from one getting ready to happen to one that didn't happen.

—Hy Sheridan

Experience Behind Regulation

(Continued from page 32)

In the aggregate, the volunteers managed to make about every possible pilot error. One failed to hold when required, another neglected to get landing clearance; a third left assigned altitude without permission; a fourth decided to let down to a cone altitude lower than the surrounding terrain.

Deviations from regulations were numerous. Requests for improper clearance, radio transmissions over the wrong frequency and calls to the wrong agency were not unusual. Microphone technique was generally lacking.

The project report of the Educational Research Corporation has now been placed in the hands of CAA for study. From its scientifically factual character will emerge invaluable evidence bearing on instrument training as well as on regulation. Against the hard core of fact garnered from a representative cross-section of instrument flights by pilots with casual "blind flying" experience, the CAA will be able to make intelligent decisions. Regulations based on this kind of evidence are a pilot's best guides.

Talking on the radio interfered noticeably with the ability of some pilots to control the aircraft. A common mistake was setting of the gyro when the plane was not in straight and level flight and unaccelerated attitudes. Radio procedure gave trouble to most of the volunteers. Confusing of frequencies was common. Unfamiliarity with VHF frequencies was marked. Pilots had a general reticence in admitting to the range station that they were fouled up.

Since the purpose of this story is not to report in detail on the ERC project, but to cite the effectiveness of the method employed by the CAA in getting the facts, and on the thoroughness of ERC in finding them, further examples of lessons learned can await release of the report by CAA.

To the volunteer pilots who loaned themselves to the ERC project goes FLYING's sincere appreciation. Courage and intellectual integrity are required in what must be aviation's ceaseless quest for the truth.

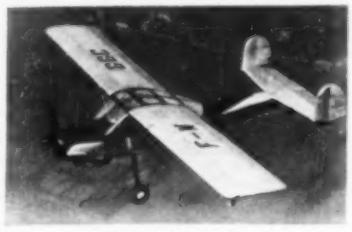
END

"She always rears up when one of those new-fangled jets goes by."

In Foreign Skies

FRENCH SPOTTER

Performance figures released for France's *Max Holste 152*, high wing gun spotter, indicate that the light craft is controllable at speeds as low as 41 m.p.h., and with full flaps stalls at 28 m.p.h. The plane is powered by a Salmson Argus injection engine of 220 hp, has a cruising speed of 112 m.p.h. and a range of 400 miles plus.



Max Holste 152

* * *

FAR EAST SURVEY

Douglas Aircraft engineers have turned over to the U. S. Air Force the results of a survey of aircraft maintenance and overhaul facilities in Japan.

* * *

SMALL FIELD'S GCA

A radar landing-aid for small airports, operated by one man and housed in a small space, has been developed by British engineers. The unit picks up planes on direct frequency and a graph scale gives a constant indication of their height and distance from the runway. Pilot of the incoming plane is talked down to a "gate" about half a mile from the airport and is then given a final heading. All types of planes have been landed by this aid, which picks up planes 14-16 miles out at altitudes up to 14,000 feet.

* * *

PEST CONTROL

Use of light planes and helicopters in the control and destruction of insect pests is making news all over the world. A fleet of Auster *Autocrats* was dispatched to the Sudan to spray a quarter of a million acres of cotton crops in a battle against the cotton-jassid. Piper *Super Cubs* earned an official vote of thanks from the Pakistan Government for their successful spraying operations against destructive locusts.

* * *

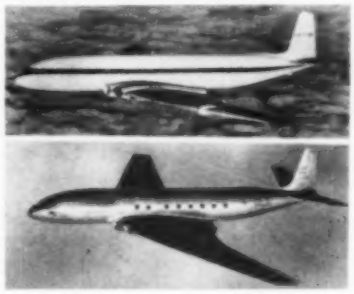
TO RULE AIR WAVES

Britain's entry into the money-maker sweepstakes—the 100-passenger *Britannia* airliner—will be ready for testing this summer. A low-wing monoplane with four Bristol Proteus III turbo-prop engines, the *Britannia* will have a maximum payload of 25,000 pounds and a range of 4,000 miles. A 370 m.p.h. speed is forecast. The giant craft is being built at Filton, England, and two prototype models are expected to be flown at the Farnborough Air Show in September. Cost of the plane is $1,540,000 each, at which price BOAC has 25 on order.

* * *

COMET TALES

The British are jubilant over the various news reports emanating from the de Havilland Aircraft Co. on the subject of the *Comet*. Six months ahead of schedule, BOAC took delivery on the *Comet* identified as G-ALYS, world's first jet airliner to be granted a normal certificate of airworthiness. Soon afterward the new and more powerful *Comet*, fitted with four Rolls-Royce Avon engines in place of the earlier Rolls-Royce Ghosts, made its first test flight. John Cunningham, chief test pilot for de Havilland, was at the controls. This Series II *Comet* will be able to carry 44 passengers on the world's longest air routes. The accompanying pictures show both the early and future *Comet* versions.



Comets II (Top) and I

TRAFFIC TREND

Swissair reports a passenger increase of 90,000 during 1951. Last year Switzerland's airline carried 281,748, compared to 191,625 in 1950.

* * *

SOARING STAR

France's new high performance sailplane, the Fouga CM.75, is expected to compete in the International Soaring Championships to be held in Madrid, Spain, in July. The two-seater sailplane has a span of 59 feet and length of 27.5 feet.

Fouga CM.75

Captain P. V. H. Weems, U. S. Navy, Retired, founder of Weems System of Navigation, author, internationally known consultant on air and sea navigation.

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AIR WSN WEEMS SEA SYSTEM OF NAVIGATION

ANNAPOLIS MARYLAND

That Others May Live

(Continued from page 31)

Rescued from the sea by helicopter, this downed flyer is being hoisted to safety by a steel cable attached to a motorized winch.

"drops." These were hastily transferred to an already warmed-up PBY. A "paramedic"—word for a doctor trained to jump—and a trio of survival specialists piled into the amphibious craft.

Five minutes and 15 seconds after the alarm was received at the field, the rescue ship was in the air headed for the Pass.

On the ground a helicopter clattered along one side of the main runway.

At another position, a weasel was run up steel ramps into the yawning belly of a transport. ARS teams must be ready to dive quickly into the most forbidding places. Both helicopter and transport would be ready to fly at the first signal from the search craft that they were needed.

Fortunately, the alarm was a dud—which is nothing exactly new to ARS. Last year the Service as a whole was alerted 8,175 times, of which 6,981 were false.

Air Rescue Service maintains 34 centers on four continents and Oceania. These include not only the United States, Alaska, Canada and the Canal Zone, but such spots as Bermuda, the Philippines, Azores, Puerto Rico, Japan, Newfoundland, Labrador, Libya, Saudi Arabia, England, Germany, Hawaii, Okinawa and Guam.

Each center posts at least one aircraft and crew on standby 'round the clock seven days a week. Every center is connected by radio, telephone or interphone with flight services, airport towers, Ocean Air Traffic Control, Civil Aeronautics radio centers, Coast Guard and other search and rescue organizations. All information is relayed instantly to liaison outfits.

Every morning at his operations headquarters in Washington, D. C., Colonel Kight briefs himself on the progress of all missions. This he does with the aid of teletyped reports and maps.

Kight's familiarity with every part of the world where Military Air Transport planes fly, and with rescue facilities which he himself promoted, has imbued him with an intuitive sense of what to do.

If all seems not to be going well with a particular effort, he contacts the mission commander, asking questions and offering suggestions.

An alert is sounded when a plane goes unreported for 30 minutes. Plans for search are laid.

All airports and ships along the plane's route are contacted. If the plane remains unreported for an hour, ARS ships soar away to spot the trouble.

Since its founding in 1946, ARS techniques have been scrubbed and polished. Perhaps the most gruelling air training on earth is that demanded of the survival specialist school conducted in and out of Tampa, Fla.

So exacting are its trials that less than one of 20 candidates is chosen to take its stiff exams. A man may be a dandy pilot or a top notch bombardier, and still lack what it takes to be a survival expert.

To become a member of this inner core of the ARS, whose motto is "That Others May Live," a candidate in one test is parachuted into wilderness country without food, drink or weather protection.

He must prove his ability to live in nature's raw way for three days, with only a pistol, knife and a few matches to see him through.

I have talked with rescue specialists who deem snakes, lizards, owls, grasshoppers, roots and leaves sustaining delicacies.

Training anecdotes fully as unique as the following are common fare:

Shortly after Sergeant D. P. Kissinger cut himself loose from his 'chute in a remote part of the Everglades, he was not too surprised when he saw a five-foot diamond-back squirming toward him.

Being a bit empty of stomach, and knowing rattlesnake is canned in Florida, the sergeant's first thought was—"Ah, lunch!"

The serpent, though, seemed not unkindly. So at the end of the third day, when time came for Kissinger to be lifted out of the jungle by helicopter, he sacked "Asa Diamonds" and flew with him back to base. There, well fed and content, Asa became the object of much attention. Too much.

The commander of the Tampa center ordered:

"This life is tough enough as it is. Get that thing out of here."

Before the mandate could be complied with, however, Kissinger's transfer to March Field came up. In this manner "Asa" got free air transportation to the southern California rescue base.

Again, it was not to be. After learning of the big rattler's presence, the field's safety officer denied "Asa" asylum.

A kind providence seemed working overtime in Asa's lowly behalf.

Griffith Park Zoo, Los Angeles, was contacted by telephone. Its keeper, having on hand no Atlantic diamond-back, said he would be grateful to harbor Asa. So, with elaborate ceremonies, Asa, "the serpent without guile," was presented by the U. S. Air Force to the zoo where, in all probability, the worst that can overtake him will be overeating and old age.

No global setup exists anywhere like ARS. For that reason it is often called upon by foreign governments to perform emergency tasks.

A Canadian doctor was lifted from Northwest River, a primitive settlement in Labrador, by an ARS helicopter from Goose Bay, to attend three Algonquin Indians lost and freezing in the wilds. The trio was saved.

When the Israeli steamer, Meir Dizengoff, flashed her SOS, it was picked up by an ARS flying boat. The plane located the burning ship and led a British freighter to her side. The Dizengoff was towed safely to port, all her injured recovering.

"Where do the locusts breed that are destroying our crops?" cried the Libyan government.

A flight at Wheelus Field, Tripoli, went out on the vital mission. It found the breeding area. Treated with sprays and dust, the locust infestations are now under control.

Air Rescue Service helicopters and planes from Saudi Arabia aided search for survivors of a crashed French airliner enroute from Pakistan to Bahrein Island.

A critically ill official of the Panamanian government was flown from David, Panama, to Albrook Air Force Base in the Canal Zone. Given a blood transfusion in flight, he was soon returned to his post.

Forty-nine civilians from 14 different countries were yanked from the jaws of death last year by ARS.

Although the Service will go to the aid of any human anywhere, it has never been summoned to rescue any person behind either the Iron or the Bamboo Curtains.

Top brass of ARS is not, however, at loss to explain this seeming anomaly.

There being nothing like the Service's umbrella of search and rescue anywhere, the Reds would lose face should an American group be called to perform a humanitarian duty to a Communist. END

Survival equipment kit, dropped to survivors, contains socks, machete, matches, mittens, canned food, razor, soap and sometimes fishing tackle, small arms and ammunition.

LOGGING TIME

WITH HY SHERIDAN

Captain, American Airlines

I-YI-YI

i have a couple of highly intellectual friends and i often talk with them about what i write and how it can be improved and they told me that i use i too much and that it tended to make me appear egocentric, but i think it is an affectation to use we like some of the editorial writers and columnists do just as though i were a gang which i am not so i am using the small i and i fondly hope that this will keep me from seeming so conceited.

* * *

SELF-STARTING TIRES

Will some of you gentle readers back away from your TV screen long enough to drop a note telling me what happened to the idea of the self-starting tires? Every time a heavy, fast plane lands, those massive tires and wheels have to get up a high speed almost instantly and in doing so a nice wad of rubber is burned off the tread, and the jerk of the acceleration makes the passengers thinks that the landing was something less than neat.

Someone had the idea of making the tires self-starting. Air scuppers were put on the sides of the tires so that when the landing gear was lowered into the air stream the tires would go around like the anemometer does. Why weren't they a success, does anyone know?

* * *

Come to think of it, there is nothing so habit-forming as resting.

* * *

15-SECOND WORLD

An airline pilot wrote the editor of *The New Yorker* and the editor was so astonished to find that one was literate that he dictated an editorial. The pilot, you see, had a tale to tell about how he gets relaxed and the editor thought that being able to relax is a most delightful thing, but for what reason I cannot for the life of me comprehend.

Anyway, the substance of the pilot's letter was what he had learned as he was coming in to land. He could see only 15 seconds ahead. Beyond 15 seconds he could not be sure—he was living, you see, in a 15-second world.

The editor said that if he were going to fly on an airline—and I got the impression that he considered the possibility remote—he would want to fly with this pilot. Why the editor should feel a lot of confidence in a man who was despondent about anything beyond 15 seconds I cannot imagine. We used to have minute men. Now we have 15-second men.

OVERHEARD IN THE LOUNGE

"Yes, she makes small talk, and the thing of it is she can make it smaller than almost anyone else."

* * *

PLAIN ENOUGH

Sadie the Stewardess called up for a cab to take her to the airport. "Where are you?" the cab company dispatcher asked.

"Right here at home," Sadie replied.

* * *

BRIGHT THOUGHT FOR TODAY

I am not superstitious, but I do believe that when your landing gear folds up on you it's a sure sign of bad luck.

* * *

AWFUL TRUTH

Ever notice how much alike they sound—altar and halter?

* * *

PIPE DREAM

Captain Blue: "Captain Brown is a very fine pilot."

* * *

WAS HE KIDDING?

All this reminds me of a mechanic who was working on top of a wing and the apron had a slant to it and the plane began to move and the mechanic shouted to the pilot: "For gosh sakes, don't just stand there. Put a block under the wheels. Use your head!"

* * *

REMEMBER WAY BACK WHEN . . .

. . . A farmer would stand in his field, wipe the back of his neck and say: "My what a big bird!"?

. . . The Scientific American Magazine reported that our scientists had proved mathematically that the ultimate limit of speed for an airplane was 125 miles an hour?

. . . We warped our wings when we wanted to bank? And the Curtiss pilots claimed that the Wright pilots had warped minds or they would fly Curtisses too?

. . . All pilots wore dress boots, and when we walked we strode?

* * *

EPITAPH

Beneath this cold and carvèd stone
There lies a lad that's dead, dead, dead!
His flight was charted by a book;
He didn't use his head, his head.

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Yugoslavia

(*Continued from page* 17)

dropped. His Chief of Staff, Colonel General Koca Popovic, went to London to discuss with American and British leaders the possibility of acquiring arms aid. These discussions led to the Mutual Assistance Pact, signed November 14, 1951, under which Yugoslavia receives substantial military aid from the United States.

By this time Tito had seen in Korea that the Western allies meant business in resisting aggression. He had seen also that the cost of Western assistance was not the subjugation of Yugoslavia as was the case with the Soviet whose squeeze was constantly multiplying border incidents.

The Yugoslav Air Force is primarily tactical in function and, like the Soviet air arm upon which it is modeled, is subservient to the requirements of the Army. Commanding is Lt. General Zdenko Ulepic, former partisan hero, who is responsible to Col. Gen. Koca Popovic.

Organization-wise, the Yugoslav Air Force is formed into Squadrons, Groups and Regiments. Squadron strength varies but is normally 10 aircraft with three or four in reserve. Three Squadrons comprise a Group and from seven to 10 Groups comprise a Regiment. Separate ground organization exists for servicing and maintenance. Major Air Force bases are located at Zagreb, Novi Sad, Mostar, Sarajevo, Zemun and Skoplje.

Tito's aviation fuel situation has improved during the last 20 months and, by cannibalization, some 250 combat aircraft have been kept in service condition. Combat planes are almost exclusively of Soviet types and origin. Most widely used are the Yak-3 and 9, single-seat fighters. Others are the Il-2, Il-10 and Pe-2 attack planes. Most training planes are of Yugoslav design, but a number of Soviet UT-2, Po-2, and Shche-2 are still used, along with a few North American T-6 basic and advanced trainers.

War Wiped Out Plants

In pre-war years Yugoslavia had a small aircraft industry. The largest airplane manufacturing undertaking was the Ikarus A.D., with plants at Novi Sad and Zemun. When Yugoslavia was engulfed in war, the Ikarus plants were building Bristol Blenheim twin-engine bombers, under British license. Also testing at the time were two promising fighters of national design, the IK-3, single seater, and the Orkan twin-engine fighter-bomber. Other plants were the Rogojarsky Company at Belgrade and the "Zmaj" factory at Zemun. Both were destroyed in the war.

Following the war Tito got the Zemun plant near Belgrade again in operation and it is reported to be assembling the S-49 fighter, a nationally designed plane, to replace the Russian built Yak-3's and Yak-9's. Although claimed as an original design the S-49 is in fact a re-hash of the Yak-9. With a modified nose contour, a redesigned tail assembly, increased armament (four 12.7-mm's in upper nose housing and one 20-mm cannon firing through prop hub), and various internal re-arrangements, the S-49 is the work of a design team composed of Sivcev, Zrnic, and Popovic. Primary function of the 360-370 m.p.h. fighter is fighter-reconnaissance. Yugoslav Squadrons put the plane in service early in 1950.

Czech Engines Used

Other products of Yugoslavia's reformed aircraft industry include a variety of light training craft of wooden construction and powered mainly by engines secured from Czechoslovakia before the break in trade relations. The most widely used trainer, of national design, is a side-by-side two-seater, the C-3 Trojka (pronounced "Troyka"). This little ship won a design contest in 1946 and powered with a 60 hp Walter Mikron engine has a top speed of 100 m.p.h.

The same designer, in cooperation with Petkovic, produced the Aero-2, which, used by Air Force and private flyers alike, is built in both single and two-seater versions.

Four other recent trainers are: the tandem two-seat open cockpit Type-211; the closed cockpit, gear-retracting Type-212; the Vihor two-seat monoplane Type-213; and the 1-Maj (First of May—Communist Party Day), a cabin monoplane.

Apart from these light models the Yugoslav industry has developed a medium-sized glider for troop carrier and freight purposes; a twin-engine bomber trainer; a twin-engine low wing transport of "feeder service" size; and a "pack" helicopter along the lines of the Hoppicopter.

As can be realized, then, Yugoslavia lacks any great capacity for modern aircraft manufacture and has no truly modern combat craft. One real asset she does have—a strong reserve cadre of competent and well-trained pilots who can be judged capable of handling jets supplied by Western allies. This reserve of pilots is the direct result of government-financed sport flying which has received strong attention from Tito. The youth of the country are rated considerably more air-minded than youth in the Western world.

Flying Clubs Popular

In each of the Republics which form the Federation of Yugoslavia, there are numerous flying clubs administered by the Aeronautical Union of Yugoslavia. The clubs vary considerably in size and distribution, larger towns sometimes having several clubs.

Each Club is broken down into various special sections having to do with gliding, power flying, parachuting, and kindred activities. All pilots must graduate from all sections. Five training jumps are included in the parachute course.

Chief of Air Staff, General Ulepic hopes to receive F-84 Thunderjets for his tactical Air Force—Army support. Marshall Tito claims this army numbers a million and a half available for emergency call. Under arms presently are some 325,000 troops, undeniably first class infantry. That they need Western airpower to be effective in war there can be no doubt. That the Yugoslav Air Force can staff a reasonable quantity and quality of modern airpower seems certain. Beyond these conclusions the decision of how far Western aid should be extended in defense of Yugoslav skies lies in the hands of those who must defend Europe from the Kremlin. END

There's one of those *Sabre* jet pilots!

By BILL RENSHAW

FF'S ON INCREASE

Farmers are not selling their airplanes in large numbers. In fact, there are indications that the number of FF's is increasing daily.

When officers of a midwestern group of FF's polled their 3,000 members trying to get volunteers for two panel discussions, they had only one who wanted to talk on "I Sold My Airplane Because ——." On the more cheerful subject "I Am Not Selling My Airplane Because ——," they had a deluge of volunteers.

While some FF's are dropping out, best estimates indicate that for every nine who quit flying, 10 new converts take their place.

Gain could be upped considerably if several adverse factors, which we have discussed from time to time in this column, could be corrected.

One which we haven't said much about is the attitude of Internal Revenue Collectors in some areas. In spite of rulings which recognize the airplane as a farm tool some collectors continue to insist that an airplane on the farm is largely a luxury.

As a forerunner to some educational work along this line, this column would like to hear from FF's who have had both favorable and unfavorable results in charging off some of their airplane expenses and depreciation. In reporting material sent us we will not use names if requested not to do so.

* * *

MADAM PRESIDENT

This column sends a big "well done" to the flying farmers of South Dakota who recently broke precedent by electing Mrs. Dorothy A. Woodard to the presidency of that state organization.

Mrs. Woodard has some very pronounced ideas as to what private flying needs. We'll give you a run-down later. Incidentally, Mrs. Woodard has invited us to attend their next state meeting, which we might just possibly be able to do. It would be interestin' to see a lady president presiding over a hangar full of aerial bronc busters.

We like the way the lady FF landed on our first question. "There will be more people flying," she opined, "when the war hungry crawl in a hole and give us a chance to look on the airplane as something besides a destruction device."

Here in the midwest we like that "on the range" philosophy. We believe the airplane is destined for better things. That's why we promote fly-to-worship events. That's why Kiddie Airlifts are close to our hearts. That's why we've contributed liberally when a missionary needed a plane.

AVIATION IN SCHOOLS?

Should aviation be taught in our public schools? Flying Farmers answer that query with an emphatic "YES."

Out of 100 Flying Farmers contacted, 94 would like to see aviation a part of the classroom curriculum, and all but two would start aviation courses in the grades. None were outright opposed to having aviation studied in the classroom, but three FF's expressed doubt that it would help much. One said youth was already sold on aviation, and that all they needed was a plan that would put them in the air.

O. G. Edwards of Dexter, Mo., feels that youth should be given a chance to fly through a government-sponsored aviation program. "That," he says, "is the solution to future civilian flying."

Many Flying Farmers said they felt that flying should be taught much like driving is now taught in many schools.

A Georgia FF answered our question—"Would teaching aviation in our public schools help produce a truly air-minded generation?" by saying, "it might help." After which he asked, "Why not educate CAA?" This FF, who has had some unfortunate experiences with non-flying CAA officials, would make the owning and operation of an airplane mandatory for all CAA personnel. He argues that they would soon get a liberal education in the problems confronting the private airplane owner.

* * *

TOP DRESSING BY AIR

From train to plane is the story in Ohio. Top dressing of winter wheat with liquid nitrogen, long next to impossible with earth-borne equipment, was solved by trail blazer Ralph Young who conceived the idea of having a tank car of Solution 32 per cent nitrogen switched to a spur adjacent to the Plain City, Ohio, Airport. Applicator planes taxied to the tank car, filled their tanks, and took off for nearby wheat fields. One farm, located six to seven miles from the airport, had 1,000 acres treated.

* * *

ROADABLE PLANE

The roadable Ercoupe mentioned in this column recently will be demonstrated at the 1952 Field Day of midwest FF's. Wismer Holland who equipped the Ercoupe so it can be driven will fly the airplane from Valdosta, Ga., to the FF event, take the wings off and drive away.

FF field day is tentatively scheduled for August 4th.

* * *

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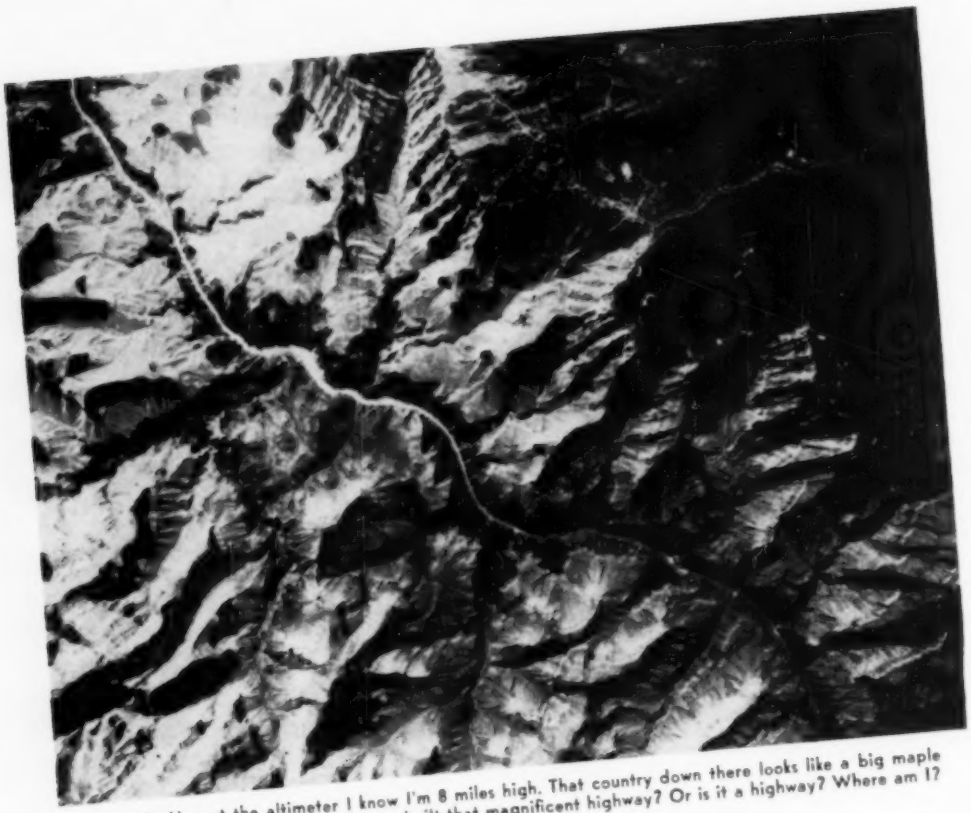

1. By looking at the altimeter I know I'm 8 miles high. That country down there looks like a big maple leaf; and who do you suppose ever built that magnificent highway? Or is it a highway? Where am I?

WHERE AM I?

One of the rewards of flying is an intimate knowledge of the face of our country. In successive issues of FLYING we will carry aerial views of landscapes with distinguishing markings. It's up to you to figure out the location. If you remember them all you will eventually have a pretty good idea of America.

SEE PAGE 62 FOR ANSWERS

2. One of the prettiest sights you can see flying down the Columbia is this white haired old gentleman. Skiiers can tell you he gets rough at times. You are looking N.E. at him from here.

3. This is down Alabama way and there is a song about the place. During the Berlin Air Lift, M.A.T.S. flew aircraft engines from an over-haul base here to Rhine-Main, Germany.

4. If you were a wounded boy coming home from Korea in a big Lockheed Constitution this is the first city of the homeland you might see.

5. If any city on earth can claim an interest in transportation it is the one you see here. That placid water tells you it isn't on the sea coast.

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I Learned About Flying

(*Continued from page 28*)

instruments except the minimum required for day VFR flight, so that our navigation was to consist of simply the compass and chart method.

Our first refueling stop was to be Lock Haven, Pa. After we had flown 30 minutes and had increased our altitude because of an increase in the altitude of the terrain, we discovered that the little drops of rain which were running back under the wing were beginning to freeze solid. Although I reduced the altitude, ice continued to accumulate on the wing leading edge. I immediately deviated to the left of my course in order to descend further in a river valley, and to land at an airfield there if necessary.

After we had let down into the valley, the air warmed sufficiently so that we lost our unwelcome load of ice, and as the sun began to shine weakly through some thin spots in the overcast, we decided not to land but to utilize our fuel reserve to continue to Lock Haven. Flying along crooked rivers in order to avoid icing which we suspected we might find again if we flew directly across the mountains used up so much fuel that I was wondering whether I could count on normal fuel consumption to get us to Lock Haven. However, we made the field, and the line boy put 11.6 gallons in the nominally 12-gallon fuel tank.

Our weather check told us that weather at our next refueling stop, Baltimore, and our destination was very good. The area around Lock Haven was reporting satisfactory visibility and an overcast high enough to permit a direct flight to Baltimore across the mountains south of Lock Haven. Even so, the murk was getting thicker and the visibility was down to about two miles when we took off.

People who have been in Lock Haven will perhaps recall that the Susquehanna River Valley runs about east through Lock Haven, and is bounded on the south by a prominent east-west ridge which is notched by a small stream that empties into the Susquehanna. After we had cleared the traffic pattern, I headed the little *Cub* toward the ridge to the south, and quickly realized that our angle of climb was insufficient to permit us to clear the ridge.

Perhaps most pilots would circle over the valley until they had attained the altitude required to clear the ridges, but I was in a hurry, and could see nothing wrong with flying the airplane through the notch while climbing to altitude, figuring that I would have enough altitude to clear the next ridge when I got to it. I realized as I was passing through the first ridge that I wouldn't be able to make it over the next. The simple answer to this problem, I figured, was to make a 90 to the left, and fly east between the ridges until I had sufficient altitude to turn right across the ridge to the south. This I proceeded to do, all the while climbing.

Now the ridge on my left and right converged as I flew along, until some distance ahead they met and became a single ridge. This means that the valley between the ridges steadily rose in altitude, until it vanished at the altitude of the ridges where they met. I felt unconcerned about this, since I expected to have plenty of altitude in a short while to clear the ridge on the right. As the little airplane droned up the valley, however, I found that, although I had been steadily climbing, I was closer to the trees below than when I had started up the valley.

I added some power and steepened the climb. Very quickly then, I realized that the valley was gaining altitude distinctly faster than I was. I applied full throttle, and adjusted the airspeed to the point where I thought I was getting the maximum angle of climb. At the same time, I became aware of the awful fact that the ridges were now so close on the sides that there was not enough room to make a 180! There was nothing I could do then but keep the airplane straight and watch with great anxiety the race for altitude between the airplane and the trees just below.

"What a stupid situation to get into," I thought. I was steadily losing altitude; as I alternately looked at the top of the ridge to my right and at the tree tops below, my altitude decreased to 150 feet, then to 100, then to 75 feet. Although the ridge to my right was only a little higher than the airplane, *there was nothing I could do to climb a bit faster.* Then, as I was nearing the point where the two ridges met, I was overjoyed to see ridges in the distance beyond the one to the right! I put the *Cub* into a very

Anniversary for Academy of Aeronautics

Still guiding the destinies of the Academy of Aeronautics are the four aviation "greats" who founded the school 20 years ago. Left to right, they are: Lt. Col. G. A. Vaughn, Jr., Richard Whatham, C. S. "Casey" Jones, president, and Lee D. Warrender.

Casey Jones' Academy of Aeronautics, alma mater of 25,000 aviation technicians, celebrates its 20th birthday May 31.

In 1932, foreseeing an increasing need for well-trained technical people in aviation, C. S. "Casey" Jones went to work on the idea of founding a school. With Jones, Lee Warrender, Richard Whatham and George A. Vaughn, all veteran airmen, as the founding fathers, the school opened that May in Newark, N. J. A few months later Walter Hartung joined the foursome to take charge of engineer training.

For the first seven years the courses were built up around two types of training—mechanical training with an engineering background, and engineering with a practical mechanical background.

LaGuardia Airport was being built up in 1939 and 1940, and Mayor Fiorello LaGuardia's plan for New York City's air terminal included an aviation school. Casey Jones and his colleagues were invited to move to LaGuardia Airport, to a new building designed specifically for the school's program.

It was planned to move the Newark school to LaGuardia Airport then but the prewar upsurge in aviation activity brought a great demand for trained technicians. Both the Newark and the LaGuardia schools were operated at full, three-shift capacity during the war years.

Since the war the Academy of Aeronautics has developed its program mainly along technical and engineering lines. Many veterans have received training here and enrollment is currently at a peak thanks to non-veteran high school graduates.

During its 20 years, the Academy's graduates have included 15,000 military trainees, 7,000 civilian specialists and 3,000 men and women enrolled in regular courses. Airlines, manufacturers and all military branches of aviation share in making use of training acquired at the Academy of Aeronautics.

gentle turn, and sailed over the ridge and out over the valley beyond with just a few feet to spare.

End Not In Sight

This ought to have been enough trouble for a lifetime of flying, but more was to come. We picked up our compass heading for Baltimore, still climbing. Just about the time we reached the altitude of the highest hills in the vicinity, we ran into the overcast, from which mixed snow and rain were now falling. The overcast was considerably lower than the reports had indicated. We now couldn't see a thing but white stuff in every direction. Hoping that we would pop out in a few moments, I attempted to maintain straight and level flight.

I had never had any instrument training, and the airplane, as I mentioned before, had no instruments. You can easily visualize what my straight and level flight amounted to—engine and flight speed alternately going up and down, with the compass swinging incessantly, accompanied by weird forces tugging at our bodies in weird directions. I had no opportunity to see what Don was doing in the back seat, but I marvelled at his silence. To liven things up even further, ice began accumulating on the wing leading edges. Now we were in a spot; we couldn't go higher because of ice, couldn't go lower because of mountains which we couldn't see, and couldn't stay where we were for both reasons.

I was really alarmed then, and decided I had all the flying I wanted for that day. My compass heading plus 180° made 320°, and I decided to fly this until the time should put me back over the Susquehanna Valley. Since I knew that the airplane would fly itself perfectly level hands off, I decided that the best thing for me to do was to let go of the stick and try to keep the airplane flying somewhere near the direction I wanted by the use of gentle, intermittent application of rudder only.

Soon I had the compass fairly well settled out near 320°, and began to keep an eye out for the ground. After about a minute, I glanced back at the compass and found it reading 120°. For the first time in my life, I felt a momentary sense of panic. I thought, "Am I going to stay up here flying in a circle until I've picked up too much ice to stay in the air?" I forcefully told myself that I must keep calm and deliberately concentrate on holding that compass near 320°.

Happy Ending

With constant effort, I was able to keep the airplane headed fairly close to the desired direction, and in about fifteen minutes, I caught intermittent glimpses of the green Susquehanna below. A quick descent and landing ended the most instructive cross country I have ever made. The line-boy apparently knew why we were back, because he opened the hangar doors for us as we taxied up. The next morning dawned bright and clear, and we enjoyed an uneventful flight to Williamsburg.

What did I learn from this lesson? I had just had demonstrated to me something which every flat-land pilot should realize anyhow. The maximum angle of climb of a light airplane is actually small, and you must allow a great deal of horizontal space to attain a substantial increase in altitude. It was also clearly demonstrated that ceilings can be quite a bit lower between weather observation stations than over these stations. I have encountered this condition many times since on cross-country flights, just as many other pilots have. I have often wondered if perhaps such a potentially dangerous situation doesn't call for a turn and bank instrument in every cross-country airplane, and a requirement that pilots be able to fly straight and level under the hood before they are issued their private certificates.

So much for specific errors and specific corrections. In the final analysis, my troubles fundamentally were caused by the same mistake which has so often been the cause of accidents in every field of human endeavor. I allowed insufficient margin for error. END

"Outside of that, how do you like the way she takes off?"

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EXCEPT for four astrodomes bulging out of the cabin roof, the Air Force's T-29 looks from the outside very like the Convair 240 commercial airliner. Inside the plane, there's no resemblance.

The interior of the T-29 has been specially designed as a classroom for the navigator-bombardier-radar observer who is known as the "Triple Threat Man" of the Air Force. Mather Air Force Base in California is the setting for this highly specialized type of training.

The Training Analysis and Development Section of Mather's Bombardment School cooperated with engineers from Consolidated Vultee Aircraft Corp. to design the T-29. The interior has been divided into compartments for the individual types of instruction.

The passenger section of the Convair becomes the radar and navigation classroom. Fitted with the latest radar and navigational aids, it is intended to provide realistic training for the officers who will serve on such aircraft as the Consolidated B-36 *Global Bomber* and the Boeing B-47 *Stratojet*.

Within the radar section is a master viewing scope, plus an auxiliary scope. In the navigation section, tables are provided for each student and a loudspeaker makes it possible for the instructor to address the group in flight.

Before each student is a magnetic compass, radio compass, altimeter and airspeed indicator. He also has access to a radio altimeter, driftmeter and LORAN. With this equipment, the student is able to navigate the aircraft to a target, make his bomb run and return to base without the use of any visual aids. END

Jet Transports

(*Continued from page 21*)

Still no jet transport is in the cards at the moment. The CAA's Foreign Survey Group hazards a guess that U. S. airlines competing with BOAC on international routes, may be forced to buy *Comets*, a proposition for which almost no enthusiasm has been outwardly evident on the part of airlines.

The trend now, in fact, seems almost in another direction and certainly suggests that no precipitate switch to jets is imminent. Moreover most of the major airline fleets of the world comprise American-built aircraft which hardly will be retired hastily.

Airline Expansion

On the U. S. airline side, this year will see the largest expansion of transport fleets in history; the types are the *Super-Constellation*, DC-6B, *Convair Liner* and Martin 404. Added to these is the new DC-7 of which American Airlines recently ordered 25. Power units of the DC-7 will be Wright compound engines, boosting the cruising speed of the ship to 360 miles an hour. These planes are scheduled for delivery late next year and in early 1954.

A look at foreign airlines reveals a somewhat similar situation. KLM, for example, operates 69 American-built modern transports and has 26 more on order. But it has detailed studies of the effect turbine engine operation would have on its system.

A number of European operators favor U. S. aircraft types, the CAA committee reported, and they will continue to "as long as technical superiority warrants." But the group warned that the impact of Britain's lead will begin to be felt this year. British jet and/or turbo-prop planes are now on order by several airlines including Air France, the Irish airline, Canadian Pacific and British Commonwealth Pacific.

Protecting Investment

Once British planes are established on various airlines, they will be hard for American manufacturers to dislodge because of initial investment, the spares program and training, the group pointed out.

It also made the point that jet transports now being designed will have a long life since they will fly in the 550 to 600-mile-an-hour range, just below transsonic speed. The next speed increase will be into the supersonic range "with many fundamental differences in design and propulsion."

Views of manufacturers and airline operators vary widely on the question of when American turbine-powered aircraft will come into general use. One uncannily good prophet, Frederick B. Rentschler, chairman of United Aircraft Corporation, says replacement of current types will not take place until more is known about the relative merits of jets and turbo-props.

"Early indications appear to favor the propeller-turbine," he says, "not only for range and economy but because of its inherent operational characteristics." It

will take three years to know definitely, and consequently a start on current fleet replacement is five years away, Rentschler says.

Conversion Costly

C. H. Smith, president of American Airlines, believes the jet transport will come first. He believes an American design may be ready for scheduled service in 1958, and a turbo-prop type may require an additional two years. Smith also scoffs at the idea favored by some of equipping current types later with turbo-prop engines. He foresees prohibitive conversion costs running as high as $800,000 per airplane. Planes should be built around engines rather than vice versa in Smith's view.

The CAA's Foreign Survey Group reports a European belief that, in future, types of transports would be governed by route length as follows:

Helicopter .....0—200 miles
Jet .....700—2,500
Turbo-prop .....2,000 and up

Specifications for a desired American jet transport have been laid down by the Prototype Aircraft Advisory Committee and are included in its annual report recently submitted to Congress. These call for a plane with space for 64 to 68 passengers with cargo to give a total payload of 20,000 pounds. Range would be 2,000 miles with probably 800 miles reserve, and speed would be 500 miles an hour block to block with the 20,000-pound payload and fuel for maximum range. A 5,600-foot runway should be adequate. Direct operating cost at 100 per cent load was set at 11 cents per ton-mile.

Estimated cost to build the first two prototypes was listed as $25,000,000.

Question on Costs

Operating cost of jets is still a somewhat unknown quantity. An American expert has calculated that the *Comet* would have a comparable airplane-mile cost to that of present American transports for the first year or more, but it has considerably fewer seats. Eventually costs should become less than for the American planes as engine overhaul costs decrease. If the *Comet* operating cost were brought in line with that of the American planes, this expert holds, there is no doubt which of the two types would find greater passenger approval.

The Society of British Aircraft Constructors states simply that the *Comet*, compared with the most modern airliners flying, "may be expected to be about 20 per cent cheaper per ton-mile of payload and to accomplish at least half as many more ton-miles in the year."

The Foreign Survey Group emphasizes that "much must be learned about safe and efficient methods of operating turbine-powered equipment." END

Let There Be Light

(*Continued from page 27*)

en-route airway and intermediate field beacons. The Administration's policy is to retain close spacing of beacon lights in mountainous terrain and other hazardous areas, while increasing the distance between beacons in level terrain.

Radio Gear Common

CAA takes the position that the excellent radio navigational aids now available and the large number of airport beacons in existence make night navigation over level terrain relatively easy and safe for any pilot using a minimum of radio equipment. According to CAA more than 35,000 of the country's private aircraft carry radio equipment.

This viewpoint overlooks one important fact revealed in private flying, which operates for the most part from small unpaved fields. Even the best radio in small planes gets shaken up badly on sod runways and is therefore not as dependable as the equipment in big planes. Radio cannot eliminate the need for airport and airway lighting in the case of the private flyers to the extent that it does with scheduled operations.

Seventy-eight percent of pilots in the survey group said airport beacons were adequate to locate strange airports but many indicated there should be a greater duration of the white flash, and that the green flash is not readily seen in marginal weather. The split-beam type beacon used at Air Force bases (two consecutive white flashes) was second in preference to green and white beacons.

Tetrahedron Lights Favored

Lighting of wind socks is considered inadequate by practically everyone. About half of the pilots complain that wind tees cannot be seen from a light plane taxiing at night. Three-fourths of all the group have a good word for tetrahedron lighting.

Next to high intensity runway lights, which are too expensive and require too much power for use at small fields, most private pilots prefer cone-mounted strip lights which are not easily obscured by high grass or snow drifts.

On the subject of aircraft lighting, many pilots volunteered their low opinion of most equipment. Sixty-three percent said panel lights were strictly for the birds and usually had to be modified by the plane owners. About half those interrogated wanted navigation lights to be of the flashing type and 70 percent said landing lights should be more powerful. Cabin lights were panned as inadequate for map reading. Almost half admitted no knowledge of aircraft flares or of their use.

In general it is fair to say that lighting as applied to the broad picture of private flying has not been recognized for its full significance. The subject has been dealt with piecemeal rather than as a comprehensive whole, and while much has been done, much remains to be done. Great terminals grow increasingly crowded with scheduled commerce. Unless small field lighting is made more economically feasible the private plane owner may be driven from the evening skies. This will cripple the small operator, diminish the experience of the private pilot, and handicap the national aviation potential. END

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AIRCRAFT OWNERS AND PILOTS ASSOCIATION

AOPA NEWS

Aircraft Owners and Pilots Association is a service organization for the private pilot or aircraft owner. AOPA's full time staff is devoted to helping the individual pilot. Its aim is "To make flying more useful, less expensive, safer and more fun."

Headquarters address is Box 5960, Washington 14, D.C. Members also receive a special AOPA edition of FLYING, newsletters and confidential aviation data. Opinions expressed in this column are not necessarily those of FLYING Magazine.

NAUTICAL MILE

As this issue went to press, AOPA had just appeared before the Technical Division of the Government's Air Coordinating Committee, requesting that the matter of the adoption of the nautical mile for the use of domestic civil aviation be reopened. Present plans of the Government call for the adoption of the nautical mile as the single unit of distance measurement after July 1, 1952.

In protesting the imposition of the nautical mile on civil aviation, and requesting a new hearing in the matter by top Government officials, AOPA has the backing of every major organization in the United States representing civil users of the air space. In stating its case before the Technical Division, AOPA went down the entire list of the opposition for the record. When the record was completed the AOPA official in the meeting contended that it now was quite clear that the Civil Aeronautics Administration and Civil Aeronautics Board—the only Government agencies to whom civil aviation can turn for help in such matters—had sold civil aviation "down the river," despite the industry's protests.

Final outcome of the appeal for reconsideration was not known as this issue went to press.

MEXICAN CREDENTIALS

AOPA National Headquarters in Washington now is issuing official credentials of RAMSA (Radio Aeronautica de Mexicana, S.A.) to AOPA members flying into or through Mexico. Negotiations, which were previously reported under way, now have been completed.

As RAMSA agents in the United States, AOPA now is issuing the credentials directly from Washington. Credentials can only be issued to an individual pilot, and for touring purposes only. A flat fee of $2.31 per month is charged; AOPA members can sign up for as many months as they wish.

As AOPA members already know, RAMSA is a non-profit Mexican company formed by the airlines operating in Mexico as an operating pool for all Mexican aviation radio aids. Unlike the United States, the Mexican government has no aviation radio facilities, so the various airlines there had to install and operate their own. As the network of unrelated aids got larger and larger, the airlines decided to pool them into one uniform operating company. Thus RAMSA is obligated to make pro-rated charges for all use of those facilities, because they are privately owned.

The RAMSA credentials issued by AOPA are a special arrangement for non-commercial civil flyers, and are for the flat nominal fee. In making the arrangement to act as RAMSA agents in the U.S., AOPA has greatly reduced the expense of flying in Mexico. AOPA's Flight Service handles several hundred flights per year into Mexico.

BORDER-CROSSING

AOPA also participated in the negotiations between the Mexican and U.S. governments in Washington recently, in which a new streamlined border-crossing procedure was worked out.

The new system becomes effective June 1, and will permit the single flight-plan to serve as official notification of all necessary Government agencies (Customs, Immigration, Public Health) on both sides of the border.

Full details in the AOPA PILOT.

SUN GLASSES

AOPA recently completed arrangements with the American Optical Co. to have them manufacture a quantity of the pilots' sun glasses that became so well-known and widely-used during the last war. The glasses have Calobar rose-smoke lenses and come with an AOPA shield on the nose bridge, and a carrying case. AOPA price is $7; regular list price is $8. The special aviation sun glasses are available only to AOPA members.

RENT-A-CAR

AOPA recently completed negotiations with the Avis Rent-a-Car Service to automatically issue Avis credit cards to all Active AOPA members. Unlike other car-rental cards, the Avis card also serves as a credit card, and assures the bearer of standard rental rates for cars anywhere in U.S.

Other features of the new AOPA-Avis service: Avis has stations at 270 major U.S. airports, and the stations will accept collect telegrams or long-distance phone calls ordering cars.

AOPA members also will be able to ask any U. S. airline station to wire Avis car reservations ahead free, even though the members may be flying their own planes.

NEW YORK EMERGENCY

As part of its cooperation as a member of the emergency committee formed by Eddie Rickenbacker in New York as the result of the four airline accidents which forced the closing of Newark airport, AOPA recently completed what probably was the largest mailing in its history.

Seeking to divert as much flying as possible from LaGuardia and Idlewild airports so that those fields could handle their traffic as well as that diverted from Newark, it developed that AOPA was the only organization in the country that could quickly and effectively get a notice to every certificated pilot in the United States. The AOPA Special Report on the New York area emergency, which originally went only to AOPA members, was put back on AOPA's two presses. By the time the last address stencil had gone through AOPA's machines, a total of 350,000 copies of that special report had been put in the mails.

METERS NEXT?

AOPA has heard occasional rumors about the possible adoption of meters for the measurement of altitude. With the tactics of the Government agencies in the nautical-mile adoption fresh in their minds, AOPA immediately questioned the Air Coordinating Committee concerning the meters rumor.

An ACC official gave AOPA a straightforward reply: meters are not to be adopted for U.S. use, nor do they contemplate a move to do so in the future.

Meanwhile, however, AOPA noted the minutes of a recent Government meeting in which it was pointed out that a Government committee is, after all, looking into the matter from a technical point of view.

Flying Quartet

(Continued from page 19)

we had plenty of gas and time to make Prescott.

Winslow told us of bad weather for Prescott in the afternoon, but that was hours after we would be there and gone again. So we thought.

West of Winslow the terrain goes up. Some of the peaks between there and Prescott are over 8,000 feet. We had a rough time getting altitude. We circled round and round hunting up-drafts. Now we'd gain 100 feet and the next minute lose 95 of it. Just about the time we decided to give up and go back to Winslow, we hit some up-drafts that carried us up to a safe altitude, and struck out for Prescott.

By the time we got over the hump, we were looking at the gas gauge. We had fiddled around too long getting our altitude, so decided that taking weather and gas together it would be the better part of valor to head for our alternate airport. Soon, the tall smokestacks of Clarkdale hove into sight near the foot of the mountains, and that's right next door to Cottonwood. About that time the air got really rough. I sure was sick. Wayne was o.k. until we got on the ground, then it hit him. We had been living too long on sandwiches. A fine pair of sailors we turned out to be.

Our stomachs and the weather kept us on the ground for awhile. I phoned on into Prescott to cancel our flight plan and tell them where we were. The other fellows had driven into the airport and were there when we called. That relieved them, because the sky was looking pretty threatening.

We hadn't been in Cottonwood more than a couple of hours when a wind came howling off the mountains. Frantically we pushed Maggie into the hangar before she blew away. What a storm! Hail and gusts up to 70 miles per hour.

By three o'clock the sun was out again and things were looking rosy. We called about weather and changed our course. Originally our plan was to go through Needles but it was socked in there, so we headed south for Wickenburg, then west for Blythe, where we landed at sundown. At least Maggie had made it as far as California. It would be an easy run to Los Angeles in the morning.

We took off at dawn. Maggie was purring beautifully and Wayne let me take the controls when we got to cruising altitude. I guess I'm a jinx. I no sooner got my hand on the stick than the engine started heating and the r.p.m.'s dropping off. Now it was our turn for a forced landing but directly below us was the airport at Desert Center. We landed, tied her down, went out to the road and hitchhiked home!!!

It was three weeks before we got up enough spirit to return to Desert Center. We ended up by taking out the engine and lugging it to Los Angeles for overhaul.

It all turned out happy in the end. We kept Maggie for eight months, put $300 more in her and sold her for a profit of $825—counting the $100 worth of experience.

Not long afterward Bob Seamount bought into a flying club based at Glendale's Grand Central Airport. The members call themselves the *Skyroamers*, and they own two Cessna 140's and two Cessna 170's. Those 170's are just the right size for the quartet. We are planning to go places. END

"And There I Was . . ."

The flight to Brazil would have been perfect, if it hadn't been for the co-pilot. Without trying, he was utterly obnoxious, and he succeeded in getting under everyone's skin.

He agitated to fly the plane; it wandered off course. He opened the side window of the C-46; the flight log disappeared. Worst of all, he chattered incessantly, on anything.

When we made an overnight stop in Puerto Rico, he grandly ordered his meals in high school Spanish, much to the amazement and the amusement of the natives.

Mr. Co-pilot's linguistic downfall occurred as we were flying along the coast of Brazil. Our spare radio was tuned to a broadcast station, where a Brazilian disk jockey was spinning hot jazz. Often he interrupted with outbursts of machine-gun Portuguese during which he several times mentioned the words "pasta colgatay."

"Pasta colgatay," broke in the co-pilot, "is one of the famous native dishes. It's highly spiced, but very good. We must have some when we get to Recife."

The flight engineer could stand it no longer. Disgustedly he turned to me and said: "Tell that durn fool the man's advertising Colgate's toothpaste!"

—John M. Hamilton

PILOTS

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Key to Destiny

(*Continued from page 11*)

Admirals to launch plane strikes from U. S. flat-tops; and for aircraft carrier forces of French, British and Americans to maneuver as a single striking arm. In one such strike the squadrons of the joint fleet were tied into the exercises of the Italian Air Force, which acted in pathfinder role. But until more planes are forthcoming to the South Air Command, under Maj. Gen. David M. Schlatter, USAF, the Carrier Squadrons cannot count on much land-based help.

Contrary to popular opinion, the Mediterranean is not unsuited to carrier warfare. The conformation of the long sea enables fast carrier forces to dash in for strikes and get away to the protection of friendly shores within a space of hours. This flexibility of moving airfields indeed is uniquely adaptable to the Mediterranean area where coordination of all service branches is so significant. Naturally carriers in strength are requisite just as any form of power must be in strength to be effective for offense.

To anyone who was familiar with the Mediterranean basin lands at the close of the late war, the present revival of initiative and spirit is phenomenal. No lands were worse punished—Greece, Italy, South France, North Africa, Malta, Crete—the four horsemen rode hard both on and around the blue sea. Yet when Admiral Carney was given the green light by NATO, he had headquarters established in Naples within 30 hours and was receiving the enthusiastic support of all nations concerned. Granted the Carney genius for inspiring confidence, yet even this would have taken precious time had the spirit of the peoples themselves not been aggressively searching for an answer to their destiny.

There can be no question that the continuous presence of the Sixth Fleet in the Mediterranean since 1946 laid the background for the spiritual upsurge under NATO. Peoples born and raised in the cradle of marine activity have had a chance to see in the activity of the fleet the application of airpower to their defense. In the light of what they have seen, the dread of rolling hordes outnumbering them to destruction has diminished and they have revived hope.

In no theatre of world affairs can partnership of nations and coordination of all arms of service better serve the cause of peace than on General Eisenhower's south flank where Admiral Carney holds at least one of the keys to the course of history. END

****

ANSWERS TO "WHERE AM I?"
(PAGES 54-55)

1. Grand Canyon and the Colorado River
2. Mt. Hood, Oregon
3. Mobile, Alabama
4. San Francisco, California
5. Detroit, Michigan

****

STEEL HELICOPTER BLADE

New bonded steel rotor blades are being mass-produced by the Prewitt Aircraft Co., Clifton Heights, Pa., for installation on the Piasecki HUP-2 helicopters used by the Navy. Tests indicate that the blades will operate more efficiently and economically than blades now in use, have the life-expectancy of the helicopter itself, and require neither balancing nor tracking adjustments. It is indicated that the all-metal blades may not require installation of a full set of synchronized blades when replacements are necessary. Already in production or experimental use are blades utilizing three types of propulsion—transmission, jet-tipped and rocket.

SUPER-GEORGE

C-3, an automatic pilot of near-human versatility, is being produced by General Electric for such Navy jet fighters as the Douglas F3D-2 *Skyknight*, the Grumman F9F-5P *Panther* and the Douglas A2D attack plane. The device is said to do 90 per cent of the Navy fliers' stick and rudder work—everything, that is, except the take-off and landing.

"EASY JOE"

A young Minneapolis secretary named Jeanne Linder, whose previous airplane experience was limited to one flight as a passenger, flew a DC-3 for two hours to show off "Easy Joe," the new electronic autopilot steering control developed by Minneapolis-Honeywell. Yes, she had the regular pilot along, too, and permission from the CAA.

SPEEDY SERVICE

To permit quick and safe fueling of rocket engines, Republic Aviation Corp. has built a mobile rocket engine servicing truck. Due to the highly volatile nature of the fuel they use, rocket engines must be fueled immediately prior to flight. The 12½-ton truck is capable of servicing an aircraft with the two rocket propellants—liquid oxygen and a water-alcohol mixture—and pressurizing nitrogen gas simultaneously from a single source. The result is valuable time saved over earlier fueling methods.

SKILL IN DEMAND

Production "stretch-outs" in the aviation industry have failed to lessen the demand for engineers, technicians and highly-skilled craftsmen. Aircraft Industries Assn. estimates that by the end of '52 the aircraft industry will be the second-largest user of manufacturing manpower in the nation, with employment totaling 750,000. This is triple the industry's personnel at the start of the Korean War, and an increase of 150,000 in the current year.

Sherman S. Graves

CESSNA 'COPTER

Sherman S. Graves, formerly chief inspector for Cessna, has been named general manager of Cessna's new helicopter division. Plans for the introduction of a Cessna helicopter will be forthcoming after a thorough survey of the military and commercial markets. Cessna recently purchased the Seibel Helicopter Co. of Wichita.

MYSTERY SOLVED?

This may be the answer to the question ladies everywhere are asking: "What has happened to the long-wearing nylon they used to put into stockings?" DuPont announces the production of a helicopter bearing retainer of nylon which lasts for at least 1,200 service hours without failure, in contrast to a maximum service-life of 25 hours for all other materials tested.

HUP-2 READY FOR COMBAT

The Piasecki HUP-2 helicopter, designed for anti-submarine search, plane guard rescue and utility transport, is ready for operation aboard the carriers and cruisers of the Pacific Fleet.

Roar and Snort

(Continued from page 13)

that the plane had broken loose during the night and meandered over the lot. Luckily it had wedged itself between two BT-13's and damage was minor. A Luscombe had its wings so neatly twisted off that it looked as though someone had done the work with a pair of shears.

To the housewife, the Chinook is the "roar and snort." With gusts frequently up to 70 knots, boxes, brooms, mops, buckets and any other loose or semi-loose objects sail away from their porch moorings.

However, the west wind does not always blow. There are calm days when a breeze drifts lazily in, shrouding the mountains in pale blue haze. Then a housefly could buzz contentedly around the peaks.

The author recalls one Sunday at the Boulder airport when a 65 hp T-craft landed and the young pilot alighted to get instructions for getting over the "hump." With him was his mother, who weighed over 200 pounds. Blissfully he took off, before we could finish our long and earnest warnings about mountain flying.

From the way the little craft sagged over the end of the runway, we figured the overloaded plane could get over the Continental Divide only by going through the Moffat Tunnel. By evening he returned, blissful as ever. He had taken his mother all the way to Grand Junction and back—500 miles across the highest portion of the Rockies—and had encountered no rougher air than a few thermals.

Yes, the Rockies can be crossed by light plane, but the CAA and the Colorado Department of Aeronautics emphasize that these precautions should be followed:

1) Consult CAA regarding weather. There is an automatic weather-recording instrument on Corona Pass at an elevation of 12,080 feet.

2) Your aircraft should have radio equipment.

3) File a flight plan.

4) Expect winds above 10,000 feet to be prevailing westerlies, but don't fly into them if they are more than 35 knots.

5) Allow 1,500 to 2,000 feet clearance in passing over the main ridges, and approach passes and ridges at a 45-degree angle.

6) Don't fly up the middle of a canyon at any time. It is better to fly along one side or the other so that you can execute a 180-degree turn.

7) Take a tip from the old-time mountain flyers who prefer to do their mountain sightseeing from a safe distance—preferably from a broad level valley or from the plains. END

P. S. Hopkins to Head University Air Center

Philip S. Hopkins

Philip S. Hopkins, who retired a year ago as vice president of Link Aviation, Inc., has been named to head the newly created Aviation Department of Norwich University, Northfield, Vt.

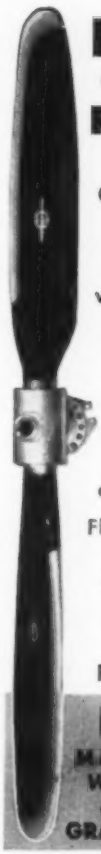
The new department will be housed in a $300,000 building now being erected on the Norwich campus. It will be ready for the opening of the 1952 fall term.

Norwich's aviation program will offer to juniors and seniors two full years of training for a career in airline or airport operation and management. Also included will be a non-technical course in fundamentals of flight and a course on the impact of aviation on modern life.

While flight training will not be a part of the college's program, flight experience will be available at the Montpelier-Barre Airport, 10 miles from the campus.

The Aviation Department at Norwich is being financed by a gift from Dr. Godfrey L. Cabot of Boston, former president of the National Aeronautic Association. The gift, known as the James Jackson Cabot Fund, is in memory of his son, a U. S. officer during World War I.

Mr. Hopkins has for many years been keenly interested in aviation education. He fostered the idea of an "air age" center in schools and traveled more than 50,000 miles by air and addressed more than 13,500 teachers, school administrators and students in promoting this program.



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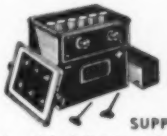

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Pilot Aid

by Bob Blatt

Soaring Has An Answer

(*Continued from page* 23)

one phase of flying that economically could and would sustain the interest of the youth of America in aviation. This phase is motorless flight—gliding and soaring.

Yankee industrial genius in nearly all fields, except aviation, outstrips Europeans by popularizing products with potential users regardless of methods required or costs. Apparently no thought has been given to this by the aviation industry; in fact, all suggestions and proposals have been rejected. One national aviation organization strived several years ago for "a model in every classroom and a glider in every high school." Another stands ready to furnish leadership with know-how, and the necessary inclination, on a voluntary basis, for such a program. Will those whom it will benefit most—the aircraft manufacturers, suppliers, publications, airlines, airport and fixed base operators and the military—seize the opportunity?

Glider Training Abroad

In Europe, where the thinking is supposed, by some, to be second to American, an air force that required all the effort of the Allied countries for five years to conquer, was trained in gliders and sailplanes.

Government Interest

Many European aircraft industries are providing loans and grants to clubs and small groups of individuals to encourage the activity permanently. The current contribution is financial support for teams from Britain and the Continent to participate in the International Soaring Competitions at Madrid. Most of the teams will be able to participate only because part or all of the cost is borne by government, industry or "Flying Foundations." To date, American pilots, who for the first time in history hold four international records, lack necessary assistance and will be unable to make the journey.

This substantial support cannot possibly have the advantages in Europe that it can have in a country where individual incomes allow ownership of aircraft; where airports are more numerous than towns and are hungry for activity; where light plane manufacturers are geared to make 35,000 personal aircraft annually and are producing 2,250; and where an Air Force spends untold thousands of dollars to train a young man to fly a trainer, when they could have him ready for advanced training for a few hundred dollars spent a few years or months earlier.

Now, may I ask a question—and answer it?

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